Access DB# 114350

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Raymond Alejandro Examiner #: 76895 Date: 02/09/04
Art Unit: 1745 Phone Number ~~30~~ 571-272-1282 Serial Number: 10/045304
Mail Box and Bldg/Room Location: Remsen 4B59 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

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Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Prismatic Battery with maximized & Balanced Current Transmission between electrodes & terminals
Inventors (please provide full names): Ng et al

Earliest Priority Filing Date: 01/15/02

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Please, refer to claims 1-11, 13, 15-23 and 25-32 for specific subject matter to be searched.

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STAFF USE ONLY

Searcher: Mike Newell
Searcher Phone #: 571-272-2538
Searcher Location: 4A30 Remsen
Date Searcher Picked Up: 02/18/04
Date Completed: 02/18/04
Searcher Prep & Review Time: 90
Clerical Prep Time: _____
Online Time: 90

Type of Search

NA Sequence (#) _____
AA Sequence (#) _____
Structure (#) _____
Bibliographic ✓
Litigation _____
Fulltext _____
Patent Family _____
Other _____

Vendors and cost where applicable

STN 102.02
Dialog _____
Questel/Orbit _____
Dr.Link _____
Lexis/Nexis _____
Sequence Systems _____
WWW/Internet _____
Other (specify) _____

PTO-1590 (8-01)

STIC Search Report
EIC 1700

STIC Database Tracking Number: 114350

TO: Raymond Alejandro
Location: 4B59
Art Unit : 1745
February 18, 2004

Case Serial Number: 10/045304

From: Michael Newell
Location: EIC 1700
REMSEN 4A30
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Search Notes

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=> d his

     (FILE 'HOME' ENTERED AT 10:32:54 ON 18 FEB 2004)

     FILE 'HCAPLUS' ENTERED AT 10:33:06 ON 18 FEB 2004
L1       147960 S BATTERY OR BATTERIES OR (ELECTROCHEM? OR PRIMARY OR SEC
L2        44326 S PRISM OR PRISMS OR PRISMATIC
L3        12596 S RECHARG?
L4       744055 S ELECTROD## OR CATHOD## OR ANOD##
L5       734874 S ASSEMBL? OR CONNECT? OR INTERCONNECT? OR STACK? OR ENGA
L6        30454 S L4 (4A) L5
L7         4129 S ELECTROD## (3A) ASSEMBL?
L8        18151 S CONDUCT? (3A) (EDGE? OR SUBSTRATE?)
L9       628438 S RAIL OR RAILS OR STRIP OR STRIPS OR BAND##
L10         179 S L1 (4A) L2
L11        4138 S L1 (4A) L3
L12           3 S L10 AND L7
L13          29 S L11 AND L7
L14          26 S L10 AND L6
L15          97 S L11 AND L6
L16         123 S L12 OR L13 OR L14 OR  L15
L17           4 S L16 AND L8
L18           3 S L16 AND L9
L19           7 S L17 OR L18
L20          58 S L12 OR L13 OR L14 OR  L19
L21          10 S L20 AND TERMINAL?
L22          48 S L20 NOT L21

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L24         315 S L23 AND L6
L25          57 S L23 AND L7
L26           3 S L24 AND L8
L27           3 S L25 AND L8
L28           3 S L26 OR L27
L29          98 S L24 AND TERMINAL?
L30          13 S L25 AND TERMINAL?
L31          14 S L28 OR L30
L32          32 S L29 AND (POROUS OR POROSITY OR SEPARATOR?)
L33          23 S L32 NOT L31
L34          37 S L31 OR L33
L35           4 S L34 AND L9
L36          33 S L34 NOT L35

     FILE 'JAPIO' ENTERED AT 10:56:55 ON 18 FEB 2004
L37         851 S L10 OR L11
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L39          48 S L37 AND L4 AND L5
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L40 1 S L37 AND L7

FILE 'HCAPLUS, WPIX, JAPIO' ENTERED AT 11:00:01 ON 18 FEB 2004

=> d l21 1-10 cbib abs hitstr hitind

L21 ANSWER 1 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN
2003:1003525 **Prismatic** sealed **battery** and method for making the same. Kim, Young-hoon (S. Korea). U.S. Pat. Appl. Publ. US 20010012582 A1 20010809, 7 pp. (English). CODEN: USXXCO. APPLICATION: US 2000-748126 20001227. PRIORITY: KR 1999-62627 19991227.

AB Provided are a **prismatic** type sealed **battery** suitable for enhancing a tightly sealing capability between a case and a leading **terminal** connected from the inside of the case to the outside of the case and simplifying the structure of the battery, and a method for making the same. The **prismatic** type sealed **battery** includes a case consisting of a can accommodating a pos. electrode, a neg. electrode and an electrolytic soln., and a cap plate welded to an opening of the can and sealed, a leading **terminal** insert-connected to a throughhole of the cap plate to then be led outside, and a fluoride resin injected between the leading **terminal** and the throughhole of the cap plate for insulation and sealing both elements. The leading **terminal** includes a head and a connecting portion inserted into the throughhole of the cap plate. The leading **terminal** is connected to one of the pos. and neg. electrodes and the case is elec. **connected** to the other **electrode.**

IC ICM H01M002-06
ICS H01M002-30

NCL 429184000; 429176000; 029623200; 029623400

L21 ANSWER 2 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN
2003:565917 Sealed **prismatic battery.** Asahina, Takashi; Kajiya, Hiromi; Hamada, Shinji; Eto, Toyohiko (Japan). U.S. Pat. Appl. Publ. US 20030138692 A1 20030724 (English). CODEN: USXXCO. APPLICATION: US 2002-349683 20020123. PRIORITY: JP 2002-14704 20020123.

AB A sealed **prismatic battery** has a **battery** case made of a plurality of prismatic cell cases coupled together via partition walls. Electrode plate groups are accommodated together with liquid electrolyte in each of the cell cases. Each electrode plate group consists of alternately **stacked**-up positive and negative **electrode** plates with separators interposed therebetween, lead portions of positive and negative electrode plates being protruded on opposite sides. Collectors are bonded to these lead portions. Between the collectors and end walls (and/or partition walls) of the battery case are provided conductive

plates that are connected to the collectors one or more than one location in their middle part so as to decrease the resistance between **connection terminals** and the **electrode** plate groups.

IC ICM H01M002-02
ICS H01M002-24; H01M002-30

NCL 429158000; 429176000; 429178000; 429161000

L21 ANSWER 3 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN

2003:236561 Battery pack. Takeshita, Toshio; Aoki, Hisashi; Tashiro, Kei (Sony Corporation, Japan). PCT Int. Appl. WO 2003026041 A1 20030327 DESIGNATED STATES: W: KR, US; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR. (Japanese). CODEN: PIXXD2. APPLICATION: WO 2002-JP9469 20020913. PRIORITY: JP 2001-279443 20010914.

AB A space for housing battery cells or a minimum gap for accommodating expanding battery cells is ensured in a battery case, and housed battery cells are prevented from loosening. A battery pack (1) comprising a plurality of quadratic-**prism**-shaped **battery** cells (3) that are series-connected and housed in a battery case (2), wherein a plurality of battery cells have, with a battery lid (32) positioned in front of the following tabs, a **cathode**-side tab (37) **connected** to the battery can bottom (35) of one battery cell and extending up to the battery lid, an intermediate **connection** tab (36) **connecting** the **anode terminal** unit (33) of one battery cell to the battery can bottom of another adjacent the battery cell, and an **anode**-side tab (34) **connected** to the **anode terminal** of the other battery cell, and wherein cell-side insulation sheets (50) are disposed between respective **cathode**-side tab and intermediate **connection** tab and respective battery-can (31) side-surfaces, and a projection (12), an upper corner rib (13), a small rib (21), a lower corner rib (22) (side edge holding unit), that hold down the longitudinally-extending side edge (3E) of each battery cell when an upside case (10) and a downside case (20) are combined, are respectively provided on the inner surface of the upside case and on the inner surface of the downside case.

IC ICM H01M002-10
ICS H01M002-22

L21 ANSWER 4 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN

2002:488300 **Prismatic battery** with maximized and balanced current transmission between electrodes and **terminals**. Ng, Andrew Sung-on; Ling, Peter (Hong Kong). U.S. Pat. Appl. Publ. US 20020081489 A1 20020627 (English). CODEN: USXXCO. APPLICATION: US 2002-45304 20020115. PRIORITY: US 2000-PV257352 20001222.

AB An improved battery cell having **electrodes** with active surface areas **communicating** along an entire **edge** with **conductors** thereby minimizing resistance and allowing for communication of electrical current to and from the battery at a high rate with an even discharge from the electrodes. Electrical current is produced by a plurality of electrodes formed of active material adhered to a **conductive substrate.** The plurality of **electrodes** is then **stacked** or wound to a desired configuration with a porous separator separating each adjacent electrode from the other. Communication along the entire edge of the formed electrodes on the **conductive substrate** with a **conductive edge** portion of the substrate, provide for maximum current flow in and out of the battery as well as well as reducing thermal concerns in high current applications. Elongated electrical conductors best made from copper are attached to the positive and negative edge portions communicating with substantially the entire active portions of the electrodes to provide a means of electrical current flow to and from the battery.

IC ICM H01M002-26
ICS H01M002-24

NCL 429161000

L21 ANSWER 5 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN

1999:519630 Document No. 131:132350 Electrode arrangement for nickel-cadmium batteries and process of manufacture. Ohms, Detlef; Kitzhofer, Willi; Schaffrath, Uwe; Benczur-Urmossy, Gabor (Hoppecke Batterie Systeme G.m.b.H., Germany). Eur. Pat. Appl. EP 935305 A2 19990811, 12 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (German). CODEN: EPXXDW. APPLICATION: EP 1999-101951 19990130. PRIORITY: DE 1998-19804649 19980206; DE 1998-19804650 19980206.

AB To fabricate **prismatic** unsealed Ni-Cd **batteries** without limit for the quantity of electrolyte, fiber structured electrodes are used at least partly, where pos. and neg. plate type electrodes are produced with intermediate placement of separator alternately to form an **electrode** packet of a given **stacked** no. and the rectified **electrodes** are always bonded with each other by **terminal** bridges. The entire surface of the electrode packet is pressed under compression of the separator lying between the electrodes and is fixed in shape stable manner. A separator material is used which has at least in the compressed and fixed state a varying gas transparency in different directions. Thus, a gas transfer is essentially prevented in the directions parallel to the surfaces of the plate type electrodes. However, lateral to the surfaces of the plate-type electrodes it is possible, and cavities are present for occasional intermediate storage of gas.

IC ICM H01M010-30
ICS H01M010-28
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

L21 ANSWER 6 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN
1980:137738 Document No. 92:137738 Hermetically sealed electrochemical storage cell. Sugalski, Raymond K. (General Electric Co., USA). U.S. US 4186246 19800129, 8 pp. (English). CODEN: USXXAM. APPLICATION: US 1978-932922 19780811.
AB A sealed **rechargeable battery** is described, in which a hermetically sealed glass casing completely surrounds an **electrode assembly** comprising ≥1 anode(s) contg. electroactive material, ≥1 cathode(s) contg. electroactive material, and a porous electrolyte absorbent separator between them and in contact with the electrodes (e.g. an interleaved structure). **Terminal** conductors extend from the electrodes through the casing and are bonded to the casing in a sealing relationship. A typical battery can be 0.1 in. in diam. and 0.75 in. long using borosilicate glass tubing.
IC H01M002-30
NCL 429060000
CC 72-2 (Electrochemistry)
Section cross-reference(s): 63
ST sealed **rechargeable battery** medical electronics; borosilicate glass casing **rechargeable battery**

L21 ANSWER 7 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN
1976:153090 Document No. 84:153090 Operation of iron-oxygen battery. Fukuda, Masataro; Iwaki, Tsutomu; Takahashi, Katsuhiro; Shimono, Nobuharu (Matsushita Electric Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 50095739 19750730 Showa, 3 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1974-2753 19731226.
AB In an Fe [7439-89-6]-O battery, KOH soln. is used as the electrolyte when the battery is discharged, and a KOH soln. contg. LiOH [1310-65-2] is used when it is charged. Addn. of LiOH increases charging efficiency. Thus, a sintered Ni plate (150 cm2) contg. Pd was coated with a fluorinated resin and used as the air electrode. Fe powder (1.2 kg) was pressed into a plate (150 cm2) which was used as the electrode. A battery (1000 A-hr) was **assembled** from the **electrodes** and 20% KOH electrolyte. The battery had a **terminal** voltage 0.85 V when it was discharged at 1 A. After discharging, the Fe electrode was charged at 20 A for 100 hr in a sep. tank contg. 25% KOH and 1.5 N LiOH. The charged battery showed a discharge capacity of 950-1000 A-hr as compared to 700-60 A-hr for a battery whose Fe electrode was charged in 25% KOH.
IC H01M
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT Anodes

(**battery**, iron air-, **recharging** of)
IT **Batteries**, secondary
(iron-air, **recharging** of)
IT 7439-89-6, uses and miscellaneous
(anodes, air-**battery**, **recharging** of)
IT 1310-65-2
(**battery** electrolyte contg., for **recharging** of iron anodes)

L21 ANSWER 8 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN
1969:73583 Document No. 70:73583 Fusion-sealed, metal-enclosed **rechargeable battery** cell. Michalko, Ignatius (Sonotone Corp.). U.S. US 3421945 19690114, 4 pp. (English). CODEN: USXXAM. APPLICATION: US 1965-478813 19650811.
AB Sealed alk. battery cells are fabricated by inserting a spirally coiled Ni and Cd **electrode assembly** into a Ni-coated cold-rolled sheet steel casing and by connecting tabs from the neg. electrodes to the inner wall of the casing and tabs from the pos. electrodes to the inner wall of the **terminal** member, which is inserted in an aperture of the top wall of the casing by means of liq.-gas-tight seal composed of high d., fired ceramic contg. 94-96% Al2O3 and coated with Mo-Mn by the Telefunken process or with Ti hyride or Zr hydride by the Bondley process. The metallic portions of the ceramic seal are protected from electrolyte corrosion by means of alkali-resistant glass fusion seals. The tabs are insulated from the **electrode assembly** by means of nylon-insulated sheets.
NCL 136006000
CC 77 (Electrochemistry)

L21 ANSWER 9 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN
1968:35317 Document No. 68:35317 **Rechargeable** sealed secondary **battery**. Seiger, Harvey N. (Gulton Industries, Inc.). U.S. US 3350225 19671031, 9 pp. (English). CODEN: USXXAM. APPLICATION: US 19640210.
AB For consuming the O2 generated during overcharging of rechargeable alk. Ni and Ag-Cd dry-cell batteries of various configurations, the cell is lined with an **electrode assembly** consisting of a center **strip** of porous Ni, an outer layer of perforated spacer material such as nylon netting, and an inner layer of electrolyte absorbent material impregnated with the electrolyte absorbent material impregnated with the electrolyte (30-4% KOH) which is in contact with the battery plates. The metal is connected to the neg. **terminal** via a low resistance path and is maintained at potential of -0.8 v. and in conjunction with the active material of the neg. plates to form a couple producing H atoms. The separators contain an increased vol. of 10% of the electrolyte. H2O generated at the pos. plates is carried by

capillary action through the short paths to the electrode **strip.** No excess of neg. acting material, Cd(OH)2, is necessary and the safe charge rate can be increased 10 times the customary rate.
NCL 136006000
CC 77 (Electrochemistry)

L21 ANSWER 10 OF 10 HCAPLUS COPYRIGHT 2004 ACS on STN
1963:25155 Document No. 58:25155 Original Reference No. 58:4169f-h
Fusion-sealed metal-encased **rechargeable** alkaline **battery** cell. Belove, Louis (Sonotone Corp.). US 3064065 19621113, 12 pp. (Unavailable). APPLICATION: US 19610510.
AB Rechargeable alk. cells constructed by a crimping process tended to lose electrolyte by alk. creeping between joints but were rendered gas and liquid tight by a process of fusion sealing. Thus, a typical cell (e.g. Ni-Cd electrodes and 20-35 wt. % KOH electrolyte) was assembled so that the rim edge of the thick metallic top wall and the surrounding upper edge of the tubular cell casing were joined by high-temp. fusion. An inorg. collar of glass (Corning 9010) was used. The glass insulator was fused into previously oxidized metal surface. The completed cell had an integral metal casing enclosing the **electrode assembly** with a relatively thin tubular casing wall. The end walls were relatively thicker; one of these consisted of an insulating section contg. a gas-tight feed through for one **terminal.** The whole construction was such as to repress mech. deformation produced by excess internal gas pressure. Cf. U.S. 2,708,212.
NCL 136006000
CC 15 (Electrochemistry)

=> d l22 1-48 cbib abs hitstr hitind

L22 ANSWER 1 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
2003:1004591 Document No. 140:7136 High voltage **rechargeable battery** system structure. Amatucci, Glenn G.; Culver, Duncan (USA). U.S. Pat. Appl. Publ. US 2002136946 A1 20020926, 11 pp. (English). CODEN: USXXCO. APPLICATION: US 2001-813414 20010321.
AB A **rechargeable electrochem.** energy storage **cell** structure capable of providing high voltage operation comprises a plurality of **electrode** and separator member **assemblies** comprising individual cells disposed in elec. series circuit arrangement with interposed elec. conductive divider members and sealed within an enveloping casing. Each divider member engages the casing to form sealed compartments for the individual electrochem. cell assemblies in order to prevent migration of electrolyte which might otherwise result in deleterious ionic

shorting between electrodes of opposite charge and comprising sep. component cells.
IC ICM H01M002-02
NCL 429152000; 429153000; 429210000; 429176000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery** high voltage **rechargeable** system structure
IT Secondary **batteries**
(high voltage **rechargeable battery** system structure)
IT 7440-44-0, Activated carbon, uses
(activated; high voltage **rechargeable battery** system structure)
IT 601471-55-0, Lithium titanium iodide oxide (Li4Ti5I2O)
(high voltage **rechargeable battery** system structure)

L22 ANSWER 2 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
2003:971363 Document No. 140:18414 Anode and cathode complexes as **electrode assemblies** for secondary battery cells.
Tu, Yu-Ta; Yeh, Show-Jong (Sunyen Co., Ltd., Taiwan). U.S. Pat. Appl. Publ. US 2003228514 A1 20031211, 7 pp. (English). CODEN: USXXCO. APPLICATION: US 2002-170716 20020614. PRIORITY: TW 2002-91112292 20020607.
AB A secondary battery cell is described that generates a d.c. in which the cathode and anode complexes are selected from a lead/chromium complex, a chromium complex/aluminum complex, and a manganese complex/zinc complex. The secondary cell has a relatively high capacitance and can be manufd. at a low cost. Moreover, it provides more stable chem. reactions and can be stably charged and discharged with a large current and without risk of explosion. Preferred electrode components are an aluminum foil or lead foil as the cathode, and copper foil as the anode. Suitable electrolytes are sulfuric acid and potassium hydroxide.
IC ICM H01M008-20
NCL 429105000; 429204000; 429109000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST secondary battery electrode complex; **rechargeable battery** anode cathode complex; aluminum lead battery cathode copper zinc anode
IT Secondary batteries
(anode and cathode complexes as **electrode assemblies** for secondary battery cells)
IT Battery anodes
Battery cathodes
Battery electrolytes
(secondary; anode and cathode complexes as **electrode assemblies** for secondary battery cells)

IT 1310-58-3, Potassium hydroxide, uses 7664-93-9, Sulfuric acid, uses
(electrolytes; anode and cathode complexes as **electrode assemblies** for secondary battery cells)
IT 7440-50-8, Copper, uses 7440-66-6, Zinc, uses
(foil, anodes; anode and cathode complexes as **electrode assemblies** for secondary battery cells)
IT 7429-90-5, Aluminum, uses 7439-92-1, Lead, uses 7439-96-5, Manganese, uses
(foil, cathodes; anode and cathode complexes as **electrode assemblies** for secondary battery cells)

L22 ANSWER 3 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
2003:777204 Document No. 139:279127 Process for the preparation of cathode materials for high energy density **rechargeable** lithium **batteries**. Maddanimath, Trupti; Khollam, Yogesh Baban; Mulla, Imtiaz; Vijayamohanan, Kunjukrishana Pillali (India). U.S. Pat. Appl. Publ. US 2003186123 A1 20031002, 5 pp. (English). CODEN: USXXCO. APPLICATION: US 2002-108418 20020329.
AB The present invention provides a process for making high energy d. lithium **rechargeable battery cathodes** based on self-**assembled** monolayer. The cathode materials of the invention are prepd. by immersing **conducting substrates** such as gold, silver, copper, and the like, in a millimolar soln. of an org. disulfide. Thereby a self-assembled monolayer of an org. disulfides on a **conducting substrate** can be obtained capable of delivering high energy and power d. after coupling with a material Li electrode anode in an electrolyte soln. using Li salts and specific solvents and co-solvents.
IC ICM H01M004-58
ICS B05D005-12; H01M004-66
NCL 429213000; 429234000; 427058000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT Thiols (organic), uses
(aliph. dithiols; process for prepn. of cathode materials for high energy d. **rechargeable** lithium **batteries**)
IT Glass, processes
(coating; process for prepn. of cathode materials for high energy d. **rechargeable** lithium **batteries**)
IT Thiols (organic), uses
(dithiols, arom.; process for prepn. of cathode materials for high energy d. **rechargeable** lithium **batteries**)
IT Secondary batteries
(lithium; process for prepn. of cathode materials for high energy d. **rechargeable** lithium **batteries**)

IT Disulfides
(org.; process for prepn. of cathode materials for high energy d. **rechargeable** lithium **batteries**)
IT Battery cathodes
(process for prepn. of cathode materials for high energy d. **rechargeable** lithium **batteries**)
IT 7440-22-4, Silver, processes 7440-50-8, Copper, processes
(coating; process for prepn. of cathode materials for high energy d. **rechargeable** lithium **batteries**)
IT 7440-57-5, Gold, uses
(coating; process for prepn. of cathode materials for high energy d. **rechargeable** lithium **batteries**)
IT 209-22-3, 1,8-Naphthylene disulfide 882-33-7, Diphenyl disulfide 1666-13-3, Diphenyl diselenide 7439-93-2, Lithium, uses
(process for prepn. of cathode materials for high energy d. **rechargeable** lithium **batteries**)
IT 64-17-5, Ethanol, uses 67-63-0, Isopropanol, uses 67-64-1, Acetone, uses 71-43-2, Benzene, uses 7440-37-1, Argon, uses 7440-59-7, Helium, uses 7664-38-2, Phosphoric acid, uses 7664-93-9, Sulfuric acid, uses 7727-37-9, Nitrogen, uses 35296-72-1, Butanol
(process for prepn. of cathode materials for high energy d. **rechargeable** lithium **batteries**)

L22 ANSWER 4 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
2003:738056 Document No. 139:247993 A **rechargeable** lithium-ion power **battery** and manufacturing. Ju, Yongming (Peop. Rep. China). PCT Int. Appl. WO 2003077348 A1 20030918, 41 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (Chinese). CODEN: PIXXD2. APPLICATION: WO 2003-CN170 20030307. PRIORITY: CN 2002-107209 20020308.

AB The title battery has each of its mono-cell consisting of a cover plate, a neg. pole, a safety valve, a pos. pole, and a case filled with electrolyte soln. The pos. pole is connected to the pos. electrode, and the neg. pole is connected to the neg. electrode. Pos. electrode is made of an aluminum foil with certain thickness coated with pos. active material on both sides. Neg. electrode is made of a copper foil with certain thickness coated with neg. active material on both sides. The **electrode assembly** has a plate-shaped structure having a pos. electrode sheet, a neg. electrode sheet, and separator. The pos. and neg. electrodes may

have more than one electrode poles.

IC ICM H01M010-40
ICS H01M002-12; H01M004-64; H01M004-36; H01M010-04

CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 76

ST **rechargeable** lithium ion power **battery** manufg

IT Primary **batteries**
(lithium-ion; **rechargeable** lithium-ion power **battery** and manufg.)

IT Electrodes
(**rechargeable** lithium-ion power **battery** and manufg.)

IT Carbon black, uses
(**rechargeable** lithium-ion power **battery** and manufg.)

IT 105-58-8, Ethyl carbonate 616-38-6, Dimethyl carbonate 623-53-0, Methylethyl carbonate 21324-40-3, Lithium hexafluorophosphate
(electrolyte soln. contg.; **rechargeable** lithium-ion power **battery** and manufg.)

IT 872-50-4, N-Methyl-2-pyrrolidone, uses 7439-93-2, Lithium, uses 7782-42-5, Graphite, uses 24981-14-4, Polyfluoroethylene 39300-70-4, Lithium nickel oxide 39457-42-6, Lithium manganese oxide 52627-24-4, Cobalt lithium oxide 131344-56-4, Cobalt lithium nickel oxide
(**rechargeable** lithium-ion power **battery** and manufg.)

L22 ANSWER 5 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN

2003:738055 Document No. 139:263359 A **rechargeable** lithium-ion **battery** with increased power density and its manufacture. Ju, Yongming (Peop. Rep. China). PCT Int. Appl. WO 2003077347 A1 20030918, 42 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (Chinese). CODEN: PIXXD2. APPLICATION: WO 2003-CN169 20030307. PRIORITY: CN 2002-107210 20020308.

AB In the title battery, each mono-cell consists of a cover plate, a neg. pole, a safety valve, a pos. pole, an electrolyte soln. and a case. The pos. pole is connected with the pos. electrode, and the neg. pole is connected with the neg. electrode. Pos. electrode substrate is selected from an aluminum foil with certain thickness, which is coated with pos. active material on both sides. Neg.

electrode substrate is selected from copper foil with certain thickness, which is coated with neg. active material on both sides. The inner body of the lithium ion battery is an **electrode assembly** which has multi-layer laminated structure having long and foldable neg. sheet, some pos. electrode sheet and separator, and in this **electrode assembly**, the pos. **electrode** sheets and the neg. electrode sheet are sep. positioned in sequence. Either the pos. electrode sheets or the neg. electrode sheet is alternately shaped into rectangle sheet with big-leaf single tab or big-leaf multiple tabs, current flows to the poles by means of current-collecting clamp. Both pos. electrode and neg. electrode have one or more electrode poles.

IC ICM H01M010-40
ICS H01M002-12; H01M010-04; H01M004-64; H01M004-36

CC 52-3 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **rechargeable** lithium ion secondary **battery** manuf safety

IT Fluoropolymers, uses
(binder; **rechargeable** lithium-ion **battery** and its manuf.)

IT Secondary **batteries**
(lithium; **rechargeable** lithium-ion **battery** and its manuf.)

IT **Battery** cathodes
(**rechargeable** lithium-ion **battery** and its manuf.)

IT Carbon black, uses
(**rechargeable** lithium-ion **battery** and its manuf.)

IT 9004-32-4, CMC sodium salt 24937-79-9
(binder; **rechargeable** lithium-ion **battery** and its manuf.)

IT 108-32-7 546-89-4, Lithium acetate 623-53-0 872-50-4, NMP, uses 7439-93-2, Lithium, uses 7782-42-5, Graphite, uses 12162-79-7 14283-07-9 21324-40-3 52627-24-4, Lithium cobalt oxide
(**rechargeable** lithium-ion **battery** and its manuf.)

L22 ANSWER 6 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN

2003:652291 Sealed **prismatic battery**. Hamada, Shinji; Eto, Toyohiko; Asahina, Takashi (Matsushita Electric Industrial Co., Ltd., Japan). U.S. Pat. Appl. Publ. US 20030157402 A1 20030821 (English). CODEN: USXXCO. APPLICATION: US 2003-346104 20030117. PRIORITY: JP 2002-9511 20020118; JP 2002-196671 20020705.

AB A sealed **prismatic battery** having a **battery** case made of a plurality of prismatic cell cases coupled together via partition walls, electrode plate groups, and

collectors bonded to lead portions on both sides of the electrode plate groups. In at least one side wall of the battery case is formed openings at locations corresponding to the partition walls such as to open to the cell cases on both sides of the partition walls. Pairs of conductive connection plates are connected to each other through the partition walls and formed with connection pieces that face the openings. The collectors are connected together via the conductive connection plates, i.e., they are connected to the **connection** pieces after the **electrode** plate groups are encased in the cell cases, and the openings are sealed by sealing plates in a manner that separates the cell cases.

IC ICM H01M002-02
ICS H01M002-24; H01M002-08; H01M006-42

NCL 429153000; 429160000; 429185000; 429149000; 429161000; 429176000

L22 ANSWER 7 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN

2003:588575 Sealed **prismatic battery** and **battery** module. Asahina, Takashi; Hamada, Shinji; Eto, Toyohiko (Japan). U.S. Pat. Appl. Publ. US 20030143458 A1 20030731 (English). CODEN: USXXCO. APPLICATION: US 2003-353861 20030129. PRIORITY: JP 2002-19772 20020129.

AB A sealed **prismatic battery** includes an electrode plate group having positive and negative **electrode** plates **stacked** upon one another with a separator interposed therebetween, collectors each connected to a lead portion on either side of the electrode plate group and having one or more connection bosses formed in a middle part thereof, and a battery case, generally rectangular in shape, for accommodating the **electrode** plate group **connected** with the collectors. The battery case has a through-hole for the connection boss of the collector to penetrate therethrough via a rubber seal. A battery module includes a plurality of the sealed **prismatic batteries**, the connection bosses of which are connected to each other.

IC ICM H01M002-02
ICS H01M002-24

NCL 429153000; 429160000; 429176000

L22 ANSWER 8 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN

2003:93028 **Prismatic** sealed **battery** module. Hamada, Shinji; Asahina, Takashi; Eto, Toyohiko (Japan). U.S. Pat. Appl. Publ. US 20030027041 A1 20030206 (English). CODEN: USXXCO. APPLICATION: US 2002-213811 20020806. PRIORITY: JP 2001-237754 20010806.

AB In a **prismatic** sealed **battery** module which includes a plurality of electrode plate groups, collectors joined to leads on both sides of the electrode plate group, and a **prismatic battery** case for storing the plurality

of **electrode** plate groups, a **connected-electrode**-plate-group body is constituted by **connecting** the plurality of **electrode** groups with collectors interposed between them. A sheet covering both side surfaces and a bottom surface of the peripheral surfaces of the **connected-electrode**-plate-group body is provided. After gaps between the sheet and outer edges of the collectors are sealed, the **connected-electrode**-plate-group body is placed in the **prismatic battery** case. Thereby, the current-carrying paths between the electrode plate groups are short and straight, resulting in reduced internal resistance. A battery case for the individual cell is constituted such that gaps between outer edges of the collectors which are not sealed to the sheet, and the inner surfaces of the **prismatic battery** case are sealed.

IC ICM H01M002-26
ICS H01M002-14

NCL 429161000; 429185000; 429129000

L22 ANSWER 9 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN

2003:93027 Cell, connected-cell body, and battery module using the same. Asahina, Takashi; Fukuda, Shinsuke; Hamada, Shinji; Eto, Toyohiko; Onishi, Masato (Japan). U.S. Pat. Appl. Publ. US 20030027040 A1 20030206 (English). CODEN: USXXCO. APPLICATION: US 2002-213822 20020806. PRIORITY: JP 2001-237753 20010806; JP 2002-9510 20020118; JP 2002-14702 20020123.

AB A cell includes an electrode plate group which is formed by laminating a positive electrode plate and a negative electrode plate with a separator interposed between them, and includes leads protruding toward directions opposite to each other from one side of the positive electrode plate and the negative electrode plate, collectors which are joined to the leads on both sides of the **electrode** plate group, and include **connection** protrusions formed so as to protrude outside, and a bag-shape battery case containing the electrode plate group joined to the collectors such that only the connection protrusions of the collectors are protruded outside. A battery module is constituted by placing a plurality of the cells in a **prismatic battery** case while the connection protrusions of the collectors of the cells are connected with each other, thereby making the current-carrying path between the electrode plate groups straight and short and increasing the output.

IC ICM H01M002-24
ICS H01M002-02; H01M002-08

NCL 429159000; 429176000; 429185000

L22 ANSWER 10 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN

2003:12968 Document No. 138:290353 A new anode material LiVMoO6 for

use in **rechargeable** Li-ion **batteries**. Liu, R. S.; Wang, C. Y.; Hu, S. F.; Jang, L. Y.; Lee, J. F. (Department of Chemistry, National Taiwan University, Taipei, Taiwan). Frontiers of Solid State Chemistry, Proceedings of the International Symposium on Solid State Chemistry in China, Changchun, China, Aug. 9-12, 2002, 79-84. Editor(s): Feng, Shou-Hua; Chen, Jie-Sheng. World Scientific Publishing Co. Pte. Ltd.: Singapore, Singapore. ISBN: 981-238-105-8 (English) 2002. CODEN: 69DKLP.

AB The lithiated transition metal oxide LiVMoO6 has been synthesized by solid state reaction and studied as an anode material. The synthesized LiVMoO6 powder has been studied by means of x-ray diffraction and x-ray absorption near edge structure spectroscopy. The electrochem. characteristics of the prepd. **electrodes assembled** in coin cells were also investigated in terms of half-cell performance. The cell exhibits three stages of discharge plateaus in the ranges 2.1-2.0 V, 0.6-0.5 V and 0.2-0.01 V, resp. The total discharge capacity, averaged over several test runs, is .apprx.1250 mA-h/g. This value is much higher than the capacities exhibited by many other anode materials.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

L22 ANSWER 11 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN

2002:676349 Document No. 137:188306 Electrochemical cell with zigzag electrodes. Corrigan, Dennis A.; Higley, Lin; Holland, Arthur; Muller, Marshall; Smaga, John (Ovonic Battery Company, Inc., USA). PCT Int. Appl. WO 2002069414 A2 20020906, 48 pp. DESIGNATED STATES: W: AU, BR, CA, CN, IN, JP, KR, MX, NO, RU, SG, UA; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2002-US5843 20020227. PRIORITY: US 2001-PV272274 20010228.

AB An electrochem. cell has an **electrode stack** arranged in a zigzag configuration. Addnl. electrodes may be inserted within the folds of the zigzag configuration. Preferably, the **electrochem. cell** is a **prismatic** cell.

IC ICM H01M

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56, 72

ST **battery prismatic** zigzag electrode

IT Secondary **batteries**
(**prismatic; electrochem. cell** with zigzag electrodes)

L22 ANSWER 12 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN

2002:491038 Document No. 137:35461 Fabrication method of **prismatic** type lithium secondary **battery**. Noh, Hyeong Gon (Samsung SDI Co., Ltd., S. Korea). Repub. Korean Kongkae Taeho Kongbo KR 2000065814 A 20001115, No pp. given (Korean).

CODEN: KRXXA7. APPLICATION: KR 1999-12509 19990409.

AB A fabrication method of **prismatic** type lithium secondary **battery** is provided to decrease internal consumption energy and enhance output capacitance, life and productivity. The fabrication method comprises steps of: forming plural sepg. films and anode/cathode films having width narrower than that of the sepg. film; alternately inserting the anode/cathode films between the sepg. films; alternately laminating the anode/cathode films between the sepg. films; encapsulating both sides of the sepg. films by heating to form an **electrode assembly**; and dipping the **electrode assembly** into electrolyte and then inserting the assembly into a case to seal it.

IC ICM H01M010-36

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium secondary **battery prismatic** type fabrication

IT Secondary **batteries**
(lithium; fabrication method of **prismatic** type lithium secondary **battery**)

L22 ANSWER 13 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN

2002:486327 Document No. 137:35553 Method for fabrication of electrode plate group for **prismatic battery**. Matsumura, Jun; Suzuki, Kohei (Matsushita Electric Industrial Co., Ltd., Japan; Toyota Jidosha Kabushiki Kaisha). Eur. Pat. Appl. EP 1217673 A2 20020626, 12 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR. (English). CODEN: EPXXDW. APPLICATION: EP 2001-310424 20011213. PRIORITY: JP 2000-378716 20001213.

AB A method for manufg. an electrode plate group for a **prismatic battery** includes the steps of manufg. a large plate from which a plurality of single electrode plates that form the electrode plate group are cut, cutting a plurality of single electrode plates from the large plate, **stacking** the single **electrode** plates by grouping together single electrode plates from different positions on the large plates, and forming the electrode plate group by successively taking single **electrode** plates from the **stacked** single **electrode** plates and alternately **stacking** the taken single **electrode** plates with single electrode plates of the opposite polarity.

IC ICM H01M004-04

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST electrode plate group fabrication **prismatic battery**

IT Battery electrodes
Secondary batteries
(method for fabrication of electrode plate group for

prismatic battery)

L22 ANSWER 14 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
2002:426704 Document No. 136:404310 Method for fabrication of **prismatic battery** module. Asahina, Takashi; Hamada, Shinji; Eto, Toyohiko; Fukuda, Shinsuke (Matsuhita Electric Industrial Co., Ltd., Japan; Toyota Jidosha Kabushiki Kaisha). Eur. Pat. Appl. EP 1211739 A2 20020605, 41 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR. (English). CODEN: EPXXDW. APPLICATION: EP 2001-310058 20011130. PRIORITY: JP 2000-364827 20001130; JP 2001-243421 20010810.

AB A **prismatic battery** module includes a **prismatic battery** case having a plurality of prismatic cell cases connected to one another through sepn. walls, a planar electroconductive connector forming part of the sepn. wall between the cell cases, an electrode plate group arranged in each cell case, and an electrolyte placed in each cell case. Lead portions of pos. electrode plates and neg. electrode plates of the **electrode** plate group are directly **connected** to the electroconductive connector. The **prismatic battery** module requires fewer connection points and provides shorter elec. communication paths, thereby reducing internal resistance.

IC ICM H01M002-22
ICS H01M002-24; H01M010-04

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **prismatic battery** module fabrication

IT Secondary **batteries**
(method for fabrication of **prismatic battery** module)

L22 ANSWER 15 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
2002:404049 **Prismatic battery** module and method for manufacturing the same. Asahina, Takashi; Hamada, Shinji; Eto, Toyohiko; Sekimori, Toshiyuki (Matsushita Electric Industrial Co., Japan). U.S. Pat. Appl. Publ. US 20020064708 A1 20020530 (English). CODEN: USXXCO. APPLICATION: US 2001-996909 20011130. PRIORITY: JP 2000-364826 20001130; JP 2001-243420 20010810.

AB A **prismatic battery** module employs a **prismatic battery** case having a single space formed by connecting a plurality of prismatic cell cases in series. Positive and negative **electrode** plates are alternately **stacked** via a separator, and lead portions are formed by projecting side portions of the positive and negative electrode plates opposite to each other. Collectors are connected to the lead portions on both sides of the electrode plate group, and adjacent collectors of associated **electrode** plate groups are

connected to each other by using an electroconductive adhesive or the like. Then, the **electrode** plate groups being **connected** in series are disposed in the **prismatic battery** case. Thereafter, a sealing material is applied to each space between each of the outer peripheries of the adjacent collectors and the wall surface of the **prismatic battery** case to partition the plurality of cell cases from one another. The resulted construction allows the battery module to reduce the electrical **communication** path between the **electrode** plate groups and thereby reduce the internal resistance.

IC ICM H01M002-24
ICS H01M002-08; H01M010-04
NCL 429160000

L22 ANSWER 16 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
2001:780529 Document No. 135:320524 Fabrication of **battery** with **prismatic** shape. Onishi, Masato; Asaka, Hideo; Nagata, Hiroshi; Fujioka, Noriyuki; Hamada, Shinji (Matsushita Electric Industrial Co., Ltd., Japan; Toyota Jidosha K. K.). Eur. Pat. Appl. EP 1148569 A2 20011024, 13 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 2001-303306 20010406. PRIORITY: JP 2000-116382 20000418.

AB Pos. and neg. **electrode** plates are alternately **stacked** upon one another with intervening separators to constitute an electrode plate group. The resp. electrode plates are laterally offset so that side edges of the electrode plates protrude on the opposite sides. Collector plates are perpendicularly welded to the side edges of the electrode plates on both sides of the electrode plate group. Loose ends of the outermost neg. electrode plates that are not welded to the collector plate are secured to the electrode plate group by a holding tape.

IC ICM H01M010-04
ICS H01M002-26
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery prismatic** shape
IT Primary **batteries**
(fabrication of **battery** with **prismatic** shape)

L22 ANSWER 17 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
2001:561048 Document No. 135:346787 7Li MAS-NMR, X-ray spectroscopy and electrochemical studies of LiMn2O4-based spinels for lithium **rechargeable batteries**. Tucker, Michael C.; Braun, Artur; Bergmann, Uwe; Wang, Hongxin; Glatzel, Pieter; Reimer, Jeffrey A.; Cramer, Stephen P.; Cairns, Elton J. (Dept. of Chemical Engineering, University of California, Berkeley, CA, 94720, USA). Proceedings - Electrochemical Society, 2000-36(Interfaces,

Phenomena, and Nanostructures in Lithium Batteries), 68-79 (English) 2001. CODEN: PESODO. ISSN: 0161-6374. Publisher: Electrochemical Society.

AB Spinels of the compns. LiMxMn2-xO4 (M=Li, Zn, Ni, Al, Co, Cr), have been synthesized with low levels of substitution by solid-state techniques and studied with 7Li MAS NMR. The non-substituted spinels were also studied with x-ray absorption and x-ray emission. The as-prepd. spinels show NMR peaks in the vicinity of 500 ppm, assigned to "normal" lithium in a tetrahedral site surrounded by 12 manganese nearest-neighbors, and 530-580 ppm, assigned to "near-defect" lithium in a tetrahedral site with one or more metal substituents as nearest-neighbors. Upon substitution for some of the manganese, the peak arising from normal lithium broadens, and reduces in intensity, whereas the peaks arising from near-defect lithium increase in intensity. After cycling, the normal lithium peak reduces in intensity and broadens, whereas the near-defect lithium peaks increase in intensity. The extent of these changes is least for spinels that show robust capacity retention. Moisture contamination results in a shift and redn. in intensity of the peak arising from tetrahedral lithium in the spinel. In addn., a new peak at 0 ppm arising from lithium-contg. SEI species is obsd. No effects of moisture contamination are obsd. in the electrochem. prepd. samples. Storage in the charged state results in changes in the NMR spectrum which are similar to those obsd. after 4V cycling. The non-substituted spinels and their electrodes were also studied with X-ray absorption and emission spectroscopy. Results reveal consistently that changes in the oxidn. state of the manganese occur even between prepn. of the **electrode** and **assembly** into the cell, prior to charging and discharging. Also, from the evolution of the spectra we can conclude that during cycling the manganese is being oxidized towards a more Mn4+-like species, regardless of a subsequent electrochem. redn.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 72, 77

IT Secondary batteries
(lithium; 7Li MAS-NMR, X-ray spectroscopy and electrochem. studies of LiMn2O4-based spinels for lithium **rechargeable batteries**)

IT Battery cathodes
MAS NMR spectroscopy
(7Li MAS-NMR, X-ray spectroscopy and electrochem. studies of LiMn2O4-based spinels for lithium **rechargeable batteries**)

IT 12057-17-9, Lithium manganese oxide LiMn2O4 145896-59-9, Aluminum lithium manganese oxide Al0.1LiMn1.9O4 192754-65-7, Chromium lithium manganese oxide Cr0.05LiMn1.95O4 220516-32-5, Aluminum lithium manganese oxide Al0.05LiMn1.95O4 365513-05-9, Aluminum lithium manganese oxide Al0.18LiMn1.82O4 365513-06-0, Aluminum

lithium manganese oxide Al0.23LiMn1.77O4
(7Li MAS-NMR, X-ray spectroscopy and electrochem. studies of LiMn2O4-based spinels for lithium **rechargeable batteries**)

L22 ANSWER 18 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
2001:394609 Document No. 135:155081 New lithium insertion alloy electrode materials for **rechargeable** lithium **batteries**. Sakai, Tetsuo; Xia, Yongyao; Fujieda, Takuya; Tatsumi, Kuniaki; Wada, Masashi; Yoshinaga, Hiroshi (Battery Section, Osaka National Research Institute, Ikeda, 563-8577, Japan). Studies in Surface Science and Catalysis, 132(Proceedings of the International Conference on Colloid and Surface Science, 2000), 939-942 (English) 2001. CODEN: SSCTDM. ISSN: 0167-2991. Publisher: Elsevier Science B.V..

AB We have prepd. flake Cu-Sn micro-composite alloys by mech. alloying technique to use as a large volumetric-capacity and highly compact neg. electrode material for **rechargeable** lithium **batteries**. This paper focuses on how to enhance the cyclability and capacity of the alloy neg. electrodes. These were optimized by adjusting phase compn. among the three components of Cu, Cu6Sn5, and Sn by controlling the Cu/Sn ratio in the starting materials and the mech. alloying time. The presence of excess Cu, relative to Cu6Sn5, showed improved cyclability at the expense of capacity, whereas the excess Sn resulted in poor cyclability. A lithium-ion cell based on a flaked Cu-Sn microcomposite alloy neg. electrode and a 5 V LiNixMn2-xO4 pos. **electrode** was **assembled**. The cell had an av. working voltage of 4.0 V and cycled well in the restricted voltage region between 3.4 and 4.6 V.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56, 72

IT Secondary batteries
(lithium; lithium insertion alloy electrode materials for **rechargeable** lithium **batteries**)

IT 12019-69-1
(anode; lithium insertion alloy electrode materials for **rechargeable** lithium **batteries**)

IT 330580-30-8, Lithium manganese nickel oxide limn1.55ni0.45o4
(cathode; lithium insertion alloy electrode materials for **rechargeable** lithium **batteries**)

IT 12668-36-9 25583-20-4, Titanium nitride (TiN)
(lithium insertion alloy electrode materials for **rechargeable** lithium **batteries**)

L22 ANSWER 19 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
2001:361791 Document No. 135:109649 Flake Cu-Sn alloys as negative electrode materials for **rechargeable** lithium **batteries**. Xia, Yongyao; Sakai, Tetsuo; Fujieda, Takuya;

Wada, Masashi; Yoshinaga, Hiroshi (Battery Section, Osaka National Research Institute, Osaka, 563-8577, Japan). Journal of the Electrochemical Society, 148(5), A471-A481 (English) 2001. CODEN: JESOAN. ISSN: 0013-4651. Publisher: Electrochemical Society.

AB We have prepd. the intermetallic compd. Cu6Sn5 using mech.-alloying, gas-atomizing, and melt-spinning techniques. The electrochem. performance of the compd. is critically dependent on its morphol. due to different prepn. methods. The Cu6Sn5 alloy created by mech. alloying, consisting of <1 μm thick flake powder, has the best battery performance of all compds. It delivers a rechargeable capacity of 200 mAh/g (2000 Ah/L) over 50 cycles when the cycled voltage range is restricted to 0.2-1.5 V. The effect of the mech.-alloying time and Cu/Sn ratio on its battery performance was further investigated. The presence of excess Cu in alloy, relative to Cu6Sn5, showed improved cyclability at the expense of capacity, whereas an excess of Sn resulted in poor cyclability. A lithium-ion cell based on a flaked Cu-Sn microcomposite alloy neg. electrode and a 5 V LiNixMn2-xO4 pos. **electrode** was **assembled.** The cell showed an av. working voltage at 4.0 V and cycled well with a reversible capacity of ca. 200 mAh/g based on the pure Cu-Sn alloy when a cell was cycled between 3.5 and 4.6 V.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56

IT Battery anodes
Mechanical alloying
Particle size
Surface area
(flake Cu-Sn alloys as anode materials for **rechargeable** lithium **batteries**)

IT Secondary batteries
(lithium; flake Cu-Sn alloys as anode materials for **rechargeable** lithium **batteries**)

IT Atomizing (spraying)
(pneumatic; flake Cu-Sn alloys as anode materials for **rechargeable** lithium **batteries**)

IT Casting process
(spin; flake Cu-Sn alloys as anode materials for **rechargeable** lithium **batteries**)

IT 96-49-1, Ethylene carbonate 616-38-6, Dimethyl carbonate 12682-92-7 21324-40-3, Lithium hexafluorophosphate 162684-16-4, Lithium manganese nickel oxide 330580-30-8, Lithium manganese nickel oxide LiMn1.55Ni0.45O4
(flake Cu-Sn alloys as anode materials for **rechargeable** lithium **batteries**)

IT 12019-69-1P 12054-11-4P, CuSn 12668-36-9P
(flake Cu-Sn alloys as anode materials for **rechargeable** lithium **batteries**)

L22 ANSWER 20 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
2001:186081 Document No. 134:210590 Chargeable electrochemical cell. Kliatzkin, Vladimir (Unibat Ltd., Israel). PCT Int. Appl. WO 2001018890 A1 20010315, 27 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 2000-IL528 20000904. PRIORITY: IL 1999-131842 19990909.

AB In an electrochem. cell for batteries comprising one or more pairs of electrodes, the first electrode is comprised of a flexible elec. insulating and ion conducting envelope which contains a flexible **conducting substrate.** The flexible conductor can be made of a conductive material in the form of fabric or grid, inserted into an active material in granular or powder form. The second electrode is also a flexible elec. insulating envelope contg. an elec. conductor inserted into a layer of an electrochem. complementary active material. The cell also contains a means for applying pressure to the **assembly** of **electrodes,** the membrane separator, and the counter electrodes so as to maintain contact between the active material particles and the conductor. The assembly also contains a suitable electrolyte; **electrode connections** are provided from each of the envelopes.

IC ICM H01M002-02
ICS H01M008-04

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 72

ST **battery rechargeable** flexible design; fuel cell flexible design; electrolyzer flexible design

L22 ANSWER 21 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
2001:54773 **Rechargeable battery** electrode testing device. Martineau, Daniel; Wronski, Zbigniew S. (Her Majesty the Queen In Right of Canada, as Represented by the Minister of Natural Resources, Can.). U.S. US 6177799 B1 20010123, 15 pp. (English). CODEN: USXXAM. APPLICATION: US 2000-489334 20000121.

AB A testing device which measures minute changes in battery electrode thickness due to repeated charge/discharge cycles. The testing device uses a moving wall to detect changes in electrode dimensions, typically thickness. The moving wall is adjacent a surface of the electrode, and is connected a sensor that measures wall displacement induced by electrode dimensional changes. Also included in the testing device is a thermocouple that senses the temp. of the device, allowing the data sampling and processing means to correct

for thermal expansion/contraction during operation. The testing device can be used during the battery cycling as it does not interfere with the charge/discharge/recharge process. The testing device can be used to measure either a single electrode, or a plurality of **electrodes assembled** into an **electrode** stack and incorporated either into a test cell or into a working battery.

IC ICM G01N027-416
ICS H01M010-48

NCL 324425000; 429090000

L22 ANSWER 22 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN

2000:415635 Structure for a **prism**-shaped metal-air **battery** cell with features to prevent electrolyte leakage and to maintain **connectivity** between an air **cathode** and a casing element. Abramson, Mariano; Dopp, Robert B.; Shrim, Yaron (Electric Fuel Limited, Israel). PCT Int. Appl. WO 2000036689 A1 20000622 DESIGNATED STATES: W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1999-US28253 19991130. PRIORITY: US 1998-PV112292 19981215; US 1999-293458 19990415.

AB A **prism** shaped **battery** cell has at least two casing elements. The casing elements are mutually engageable and are assembled by bending or crimping a portion of one casing element at least partially around a second casing element. The shape of the casing elements as well as the materials of the casing elements reduce the likelihood that the casing will corrugate during the crimping process. By reducing the size of the walls of a casing element at the corner portions, the negative effects of corrugation due to crimping are reduced. The casing elements also contain features that support a generally planar electrode in a position within the battery cell so that the edge of the electrode maintains contact with a casing element.

IC ICM H01M012-06
ICS H01M002-02

L22 ANSWER 23 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN

2000:179610 Volumetrically efficient battery for implantable medical devices. Haas, David P.; Howard, William G.; Crespi, Ann M.; Rorvick, Anthony R.; Rockow, Steven; Ries, Andrew J. (Medtronic, Inc., USA). U.S. US 6040082 A 20000321, 12 pp. (English). CODEN: USXXAM. APPLICATION: US 1997-903297 19970730.

AB A high rate battery having a coiled **electrode assembly** housed in a case that efficiently utilizes the space available in many implantable medical devices is disclosed. The battery case provides a planar surface opposite an arcuate surface to allow for the close abutting of other components located within the implantable device while also providing for efficient location of the battery within an arcuate edge of the device. The battery cases include at least three planar sides extending between a top and a base of the battery case, wherein the arcuate side is located directly opposite one of the planar sides. The **battery** case may form a **prismatic** solid shape with one arcuate surface and five planar surfaces. The batteries may include a coiled **electrode assembly** including an **anode** and a cathode; electrolyte; and a case liner containing the **electrode assembly.** The coiled **electrode assembly** can have an elliptical cross-section including two arcuate ends, wherein one of the arcuate ends is nested within an arcuate side of the case. The batteries are capable of delivering about 20 joules or more in about 20 seconds or less; and may also be capable of delivering about 20 joules or more at least twice in a period of about 30 seconds. Also included are implantable defibrillator devices incorporating the batteries and methods of manufacturing the batteries including drawing the battery case from metal.

IC ICM H01M004-02

NCL 429163000; 429131000; 429094000

L22 ANSWER 24 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN

1999:784379 Document No. 132:4846 Crosslinked polymeric components of **rechargeable** solid lithium **batteries.** Swanson, David B.; Coffey, Brendan Michael; Read, Jeffrey A.; Lewin, Stanley (Ultralife Batteries, Inc., USA). PCT Int. Appl. WO 9963609 A1 19991209, 18 pp. DESIGNATED STATES: W: AL, AM, AU, BA, BB, BG, BR, CA, CN, CU, CZ, EE, GD, GE, HR, HU, ID, IL, IN, IS, JP, KG, KP, KR, LC, LK, LR, LT, LV, MD, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, SL, TR, TT, UA, US, UZ, VN, YU, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1999-US12096 19990601. PRIORITY: US 1998-89207 19980602.

AB A **rechargeable** solid polymer lithium ion **battery** cell **assembly** including a pos. **electrode,** a neg. electrode, and a separator membrane in which at least one of the pos. electrode, the neg. electrode and the separator includes a crosslinkable polymer free from crosslinking additives and crosslinked by exposing the assembly to actinic radiation prior to providing an electrolyte to the assembly is provided. A method is provided for making the solid polymer lithium ion battery cell

assembly and the individual cell components by providing a crosslinkable polymer to at least one of the cell components, exposing the component to actinic radiation, and crosslinking the polymer. This invention can prevent degrdn. of the cell electrode and separator structures in a polymer electrolyte lithium ion cell and reduces cell problems related to high temp. failure and reduced useful battery life.

IC ICM H01M006-16
ICS H01M006-18

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

IT Secondary **batteries**
(crosslinked polymeric components of **rechargeable** solid lithium **batteries**)

IT Carbon black, uses
Fluoropolymers, uses
(crosslinked polymeric components of **rechargeable** solid lithium **batteries**)

IT Secondary batteries
(lithium; crosslinked polymeric components of **rechargeable** solid lithium **batteries**)

IT Electron beams
(radiation; crosslinked polymeric components of **rechargeable** solid lithium **batteries**)

IT 116-15-4, Hexafluoropropylene 7429-90-5, Aluminum, uses 7440-44-0, Carbon, uses 7440-50-8, Copper, uses 7631-86-9, Silica, uses 7782-42-5, Graphite, uses 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer 24937-79-9, Polyvinylidene fluoride 39457-42-6, Lithium manganese oxide
(crosslinked polymeric components of **rechargeable** solid lithium **batteries**)

IT 78-51-3 84-66-2, Diethyl phthalate 84-74-2, Dibutyl phthalate 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 131-11-3, Dimethyl phthalate
(plasticizer; crosslinked polymeric components of **rechargeable** solid lithium **batteries**)

L22 ANSWER 25 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
1999:577141 Document No. 131:187352 **Prismatic battery** construction. Vu, Viet H.; Kaplan, Alexander; McHugh, William T. (Duracell Inc., USA). PCT Int. Appl. WO 9945602 A1 19990910, 23 pp. DESIGNATED STATES: W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL,

PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1999-US3419 19990217. PRIORITY: US 1998-34483 19980304.

AB An electrochem. cell is disclosed, having a sealed prismatic housing with two opposing, internal side surfaces defining there between an internal cavity having width and length. One of the side surfaces defines an arc, and the other of the internal side surfaces defines a concave arc opposing the convex arc of the one side surface. An **electrode stack** is contained within the internal cavity of the housing, having pos. and neg. electrode sheets arranged in face-to-face relation. The **electrode stack** is arranged between the side surfaces of the housing such that the stack is retained between the one side surface and the extending features of the other side surface, and deflected to follow convex arc to maintain contact pressure between the pos. and neg. electrode sheets. The stack is thus stretched across an inwardly crowned surface of the housing. The invention can, by maintaining good intersheet contact pressure within the stack, provide good overall active material utilization (for high cell capacity) and can help to inhibit housing distension of cells with broad sides. Methods of construction are also disclosed.

IC ICM H01M002-00
ICS H01M004-00; H01M006-00

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **prismatic battery** construction; lithiated metal oxide battery

IT Primary **batteries**
Secondary **batteries**
(**prismatic battery** construction)

L22 ANSWER 26 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN

1999:490387 Document No. 131:146945 Manufacture of **prismatic** alkaline storage **batteries.** Tsukiashi, Masahiko; Shibaoka, Hiroyuki; Kitazume, Hideaki (Toshiba Battery Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 11214030 A2 19990806 Heisei, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-18739 19980130.

AB The **battery** comprising a **prismatic** container having a bottom at one end and an another open end having a step at the inner wall edge, a **stack** contg. alternate **cathodes** and **anodes** with separators between the electrodes, an alk. electrolyte, an elec. insulating gasket, and a seal is manufd. by inserting the stack in the container by setting a guide block at the open end of the container. In the insertion, a guide member having a skirt is also set in the block guide to temporarily flat the step of the open end inner wall, so that the stack can be smoothly inserted without breakage.

IC ICM H01M010-28
ICS H01M002-02

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **prismatic** alk **battery** manuf stack insertion; **electrode stack** insertion manuf alk battery
IT Secondary **batteries**
(alk. **prismatic**; manuf. of **prismatic** alk. storage **battery** by inserting stack into container using guide block and guide member)

L22 ANSWER 27 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
1999:490386 Document No. 131:146944 **Prismatic** secondary alkaline **battery** showing improved charging efficiency even in high-temperature environment. Yamane, Tetsuya (Toshiba Battery Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 11214029 A2 19990806 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-16985 19980129.
AB In the battery comprising a **stack** contg. alternate **cathodes** and **anodes** with separators between the electrodes, an anode is placed at the most external layer and theor. capacities of cathodes in the inner layers are lower than that of a cathode at the most external layer. By thinning the cathode active mass thickness in the inner layers, reactivity of these cathodes is improved, so that the battery shows improved charging efficiency even in high-temp. environment.
IC ICM H01M010-28
ICS H01M004-24
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **prismatic** alk **battery** cathode active mass
IT Secondary **batteries**
(**prismatic** secondary alk. **battery** with **stack** contg. **cathodes** having various capacity)
IT **Battery** cathodes
(secondary, alk. **prismatic**; **prismatic** secondary alk. **battery** with **stack** contg. **cathodes** having various capacity)

L22 ANSWER 28 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
1999:490385 Document No. 131:146943 **Prismatic** secondary alkaline **battery** showing improved high-rate performance. Yamane, Tetsuya (Toshiba Battery Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 11214028 A2 19990806 Heisei, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-16984 19980129.
AB In the battery comprising a **stack** contg. alternate **cathodes** and **anodes** with separators between the electrodes, the most external anode does not contain an active mass at the container side. Since a current conductor of the most external anode is contacted with inner surface of the battery container, high-rate performance at large current discharging is improved.

IC ICM H01M010-28
ICS H01M004-24
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **prismatic** alk **battery** external anode
IT Secondary **batteries**
(alk. **prismatic**; **prismatic** secondary alk. **battery** showing improved high-rate performance)
IT **Battery** anodes
(secondary, alk., **prismatic**; **prismatic** secondary alk. **battery** showing improved high-rate performance)

L22 ANSWER 29 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
1998:714582 Document No. 130:27158 Man wearable lithium ion polymer batteries for the 21st century soldier. Hoge, William; Coffey, Brendan; Barrella, Joseph; Schubert, Scott; Darty, Mark A. (Ultralife Batteries, Inc., Newark, NY, USA). Proceedings of the Power Sources Conference, 38th, 278-281 (English) 1998. CODEN: PPOCFD. Publisher: National Technical Information Service.
AB The advanced technol. capability of the 21st Century soldier calls for advanced high energy battery systems; portability is key. Ultralife Batteries, Inc. has developed a novel **rechargeable** lithium ion polymer **battery** system that offers high energy d. combined with unique design and safety features. This technol. is competitive with com. prismatic liq. lithium ion technologies and out performs all com. Ni-Cd or Ni-MH technologies currently on the market. This high energy, high cycle life, battery technol. offers unique opportunities for portable or embedded power sources. **Electrode assemblies** can be made as thin as 0.5 mm (or 0.020 in.) and be cut to any desired shape. Since the polymeric structure housed in a flexible foil laminate package, these thin cell assemblies are flexible and conformable to almost any geometry. The Ultralife lithium ion polymer technol. has already been adapted to four different military battery applications, described in this paper. These include two std. box battery formats (BB 2890 and BB2847), as well as a custom box battery design based on com. cells. UBI has also used this technol. to its best advantage by producing a thin flexible battery embedded in a wearable vest, thus providing a lighter wt., more uniformly distributed portable power source. Ultralife can also produce an interchangeable Li/MnO2 primary battery with the same form factor that can be directly substituted into any of these applications, providing approx. three times the energy for combat use.
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

L22 ANSWER 30 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
1998:536116 Document No. 129:163880 High-density **rechargeable** lithium-ion **batteries** self-assembled from graphite oxide

nanoplatelets and polyelectrolytes. Cassagneau, Thierry; Fendler, Janos H. (Center Advanced Materials Processing, Clarkson Univ., Potsdam, NY, 13699, USA). Advanced Materials (Weinheim, Germany), 10(11), 877-881 (English) 1998. CODEN: ADVMEW. ISSN: 0935-9648. Publisher: Wiley-VCH Verlag GmbH.

AB The construction of a high-capacity intercalating **cathode** via the self-**assembly** of nanometer thick polyelectrolytes (PEO and poly(diallyldimethylammonium chloride)) and graphite/graphite oxide nanoplatelets on a **conducting substrate** is described. The advantages of this approach as well as the charging and discharging behavior of a high-d. **rechargeable** Li-ion **battery** (1232 mAh/g of graphitic C) based on this cathode and also contg. electrolytes of LiAsF6 in Me formate/ethylene carbonate are reported. The cathode components were characterized by UV/Vis spectra and capacitance-voltage characteristics during charging/discharging. The developed electrochem. cell holds com. promise because it may be scaled up to an economically viable battery.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology) Section cross-reference(s): 72

ST **cathode** self **assembled** graphite oxide nanoplatelet; **rechargeable** lithium **battery** graphite oxide nanoplatelet

IT Battery cathodes
Polyelectrolytes
(construction and characterization of high-d. **rechargeable** Li-ion **batteries** self-assembled from graphite/graphite oxide nanoplatelets and polyelectrolytes)

IT Polyoxyalkylenes, uses
(construction and characterization of high-d. **rechargeable** Li-ion **batteries** self-assembled from graphite/graphite oxide nanoplatelets and polyelectrolytes)

IT UV and visible spectra
(high-d. **rechargeable** Li-ion **batteries** self-assembled from graphite/graphite oxide nanoplatelets and polyelectrolytes characterized by)

IT Secondary batteries
(lithium; construction and characterization of high-d. **rechargeable** Li-ion **batteries** self-assembled from graphite/graphite oxide nanoplatelets and polyelectrolytes)

IT Electric capacitance-potential relationship
(of high-d. **rechargeable** Li-ion **batteries** self-assembled from graphite/graphite oxide nanoplatelets and polyelectrolytes)

IT 96-49-1, Ethylene carbonate 107-31-3, Methyl formate 7439-93-2, Lithium, uses 29935-35-1, Lithium hexafluoroarsenate(1-)
(construction and characterization of high-d. **rechargeable** Li-ion **batteries** self-assembled

from graphite/graphite oxide nanoplatelets and polyelectrolytes)
IT 7782-42-5, Graphite, uses 7782-42-5D, Graphite, acidic, uses 25322-68-3, PEO 26062-79-3, Poly(diallyldimethylammonium chloride) (construction and characterization of high-d. **rechargeable** Li-ion **batteries** self-assembled from graphite/graphite oxide nanoplatelets and polyelectrolytes)

L22 ANSWER 31 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
1998:269126 Document No. 128:259509 Electrodes and their manufacture for a rechargeable electrochemical generator with an organic liquid electrolyte. Simon, Bernard; Biensan, Philippe; Galaj, Stanislas (SAFT Societe d'Accumulateurs Fixes et de Traction S. A., Fr.). Fr. Demande FR 2750800 A1 19980109, 24 pp. (French). CODEN: FRXXBL. APPLICATION: FR 1996-8404 19960705.
AB The electrodes for **rechargeable batteries** or supercapacitors (≥3 V) contg. org. electrolytes consists of a metal current collector provided with a paste contg. active material and a polymeric binder. The binder can be homopolymers or copolymers of acrylic acid, methacrylic acid, acrylamide, itaconic acid, and sulfonic acids, which are partially neutralized with LiOH, Li2CO3, quaternary ammonium hydroxides or ethanolamine. The electrode is prepd. by spreading a paste contg. powd. active material (e.g., graphite) in a polymer soln. (e.g., polyacrylic acid in water-ethanol) onto a current collector (e.g., a copper **strip**), followed by evapg. the solvent by drying (60°C). The electrode stability can be enhanced by polymn. of the binder after the **electrode** is **assembled**, e.g., by cycling at a c.d. of 20 mA/g-graphite at 25° and then at 60°C. Cathode active materials include transition metal oxides such as V2O5, lithiated Mn2O4, CoO2 or NiO. Anode active materials include Li-intercalatable carbon materials such as graphite, coke, carbon black or vitreous carbon. The org. electrolyte can be propylene carbonate, ethylene carbonate, butylene carbonate, diethylcarbonate, or dimethylcarbonate. The electrolyte can be a Li salt such as LiClO4, LiAsF6, LiPF6, LiBF4, LiCF3SO3, Li(CF3SO2)2N and Li(CF3SO2)3C.
IC ICM H01M004-66
ICS H01M004-36; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 76

L22 ANSWER 32 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
1997:443234 Document No. 127:53446 Preparation of **prismatic** secondary alkaline **batteries**. Kilb, Manfred (Christoph Emmerich Gmbh & Co Kg, Germany). Ger. Offen. DE 19544050 A1 19970528, 7 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1995-19544050 19951125.
AB Batteries with rectangular cross section are prepd. by

assembling an **electrode stack** with interposed separator and polymer cover contg. electrode implementations and contacts, filling a polymer housing with a measured amt. of electrolyte, stepwisely inserting the **electrode stack** into the housing, and finally gastightly welding the cover to the housing. The cover is provided also with a pressure-releasing means.

IC ICM H01M010-28
ICS H01M002-14; H01M002-04; H01M004-70

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT Secondary **batteries**
(prepn. of **prismatic** alk. **batteries**)

IT Safety devices
(prepn. of **prismatic** secondary alk. **batteries** with pressure-releasing)

L22 ANSWER 33 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN

1997:143601 Document No. 126:174192 Design considerations for lithium-ion cells - Part II: safety and abuse testing. Juzkow, Marc W.; Mayer, Steven T. (PolyStor Corporation, Dublin, CA, USA). Annual Battery Conference on Applications and Advances, 12th, Long Beach, Calif., Jan. 14-17, 1997, 189-193. Editor(s): Frank, Harvey A.; Seo, Eddie T. Institute of Electrical and Electronics Engineers: New York, N. Y. (English) 1997. CODEN: 64AVAV.

AB The development of lithium-ion battery systems, a relatively new technol. in comparison to conventional **rechargeable battery** systems, has encompassed an extensive no. of design considerations. These considerations are based primarily on safety, performance and cost. In Part I, the authors discussed the design considerations for lithium-ion cells at the cell component level. In this section, they will focus on safety and abuse testing of lithium-ion cells. In future papers the discussion will be expanded to cell **assembly** considerations including **electrode** and cell design, and manufg.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

L22 ANSWER 34 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN

1996:703035 Document No. 125:334031 Development of prismatic lithium-ion cells for Navy underwater applications. Castledine, C.; Fouchard, D. (Rayovac Corporation, Madison, WI, USA). Proceedings of the Power Sources Conference, 37th, 223-226 (English) 1996. CODEN: PPOCFD. Publisher: National Technical Information Service.

AB The design, performance, and safety characteristics of the prismatic Li-ion cells at the present state of development are described. Energy d. is an important design criteria for this type of battery. Prismatic designs offer potentially higher energy d. than cylindrical cells due to geometric packing efficiency. However, for a given case material, a cylindrical package has much higher

resistance to internal expansion than the parallel plates of a box. The energy d. advantage of a prismatic cell will be lost if the case has to be constructed of heavy or bulky materials in order to resist expansion of the **electrode stack** and gas pressure generated in the cell. In order to minimize the wt. of the case, the required strength must first be ascertained. The authors have developed and are now using a stack pressure measurement fixture to det. the min. case strength required for the prismatic cell. The design features of this fixture and preliminary test results are discussed.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium ion **prismatic battery** development; safety lithium ion **prismatic battery**

IT **Batteries**, secondary
(development of **prismatic** lithium-ion **batteries** for underwater applications)

L22 ANSWER 35 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN

1996:333392 Document No. 125:15096 Studies on foamed hydrogen absorbing electrodes. Liu, Wen-Hua; Yu, Chen-Zhou; Hu, Zi-Long (General Research Institute for Non-ferrous Metals, Beijing, 100088, Peop. Rep. China). NATO ASI Series, Series 3: High Technology, 6(New Promising Electrochemical Systems for Rechargeable Batteries), 259-264 (English) 1996. CODEN: NAHTF4. Publisher: Kluwer.

AB In the paper, some factors affecting electrode hydrogen absorption performances were studied by using galvanostatic cycling, XRD and SEM. Conditions of hydrogen storage alloy manuf., compn. of binder and its concn. forming pressure to prep. foamed MH electrode etc. were studied. It was concluded that heat treatment and rapid cooling down of melt could improve discharge capacity of hydrogen storage alloy resp., while mech. grinding or hydrogen absorption-desorption crush had no obvious effect. Combined binder is proved to be better than single one; the best content of binder is 3-5 wt.%. Forming pressure to prep. the foamed MH electrode was suggested to be 1-5 tons/cm2. A AA size Ni-MH battery was **assembled** with this MH **electrode** as neg. electrode. The battery has a nominal capacity of 1100 mA-h and a cycle life of more than 500 cycles.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56

IT Batteries, secondary
(nickel-hydrogen absorbing alloy; foamed hydrogen absorbing alloy for **rechargeable batteries**)

IT Anodes
(battery, foamed hydrogen absorbing electrodes for **rechargeable batteries**)

IT 1333-74-0, Hydrogen, processes
(foamed hydrogen absorbing electrodes for **rechargeable**

batteries)

L22 ANSWER 36 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
1995:931591 Document No. 123:345749 **Prismatic** zinc-air **batteries** having improved **anode assemblies**
. Putt, Ronald A. (Matsi, Inc., USA). U.S. US 5458988 A 19951017, 14 pp. (English). CODEN: USXXAM. APPLICATION: US 1993-104734 19930810.

AB The **prismatic** Zn-air **battery**, useful for portable electronic devices and computers, comprises a prismatic container, an air **cathode**, and an **anode assembly**. The prismatic container has 0 access openings, and the air cathode in the container is in gaseous communication with the 0 access openings. The **anode assembly** comprises a rectangular **anode** frame having peripheral members, a separator mounted proximate to 1 end of the anode frame and extending substantially continuously between the anode frame peripheral members, defining a trough. The **anode assembly** also comprises a gelled Zn anode which comprises Zn, an aq. electrolyte, and a gelling agent. The Zn anode is in the trough in electrolytic contact with 1 side of the separator, and the **anode assembly** is in the container such that 1 side of the separator is in electrolytic contact with the air cathode.

IC ICM H01M002-12
ICS H01M012-06

NCL 429027000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 76

ST zinc air **battery prismatic**

IT Computers
Electric apparatus
(portable; **prismatic** Zn-air **batteries** with gelled anodes)

IT **Batteries**, primary
(**prismatic** Zn-air **batteries** with gelled anodes)

IT 7440-50-8, Copper, uses
(current collector, expanded foil mesh; **prismatic** Zn-air **batteries** with gelled anodes)

IT 7440-66-6, Zinc, uses
(**prismatic** Zn-air **batteries** with gelled anodes)

L22 ANSWER 37 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
1995:772930 Document No. 123:204357 **Electrode**-electrolyte **assembly** in secondary nonaqueous lithium batteries.
Dasgupta, Sankar; Jacobs, James K. (Can.). U.S. US 5437692 A

19950801, 12 pp. (English). CODEN: USXXAM. APPLICATION: US 1994-332796 19941102.

AB The nonaq. thin film **rechargeable** Li **battery** has an anode from a polymer laminate having embedded C, and a layer of fine C agglomerated with a Li compd. contg. org. binder carried by the polymer laminate. The cathode contains a layer of fine particles of V oxide, Mn oxide, Co oxide, Ni oxide or Ag vanadate, agglomerated with a Li compd. contg. org. binder and the layer is supported on another polymer laminate embedding C. The Li battery has a solid polymer electrolyte contg. a Li compd. capable of releasing Li ions, located between the electrodes. A microporous polymer laminate separator which has been impregnated with an org. liq. electrolyte contg. a Li compd., is placed between the polymer laminate electrodes. The electrodes are adherent to the mobile Li ion carrying electrolyte with a coating of an org. adhesive contg. a Li compd. in a concn. lower than in the electrolyte, disposed between them.

IC ICM H01M010-38

NCL 029623100

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

IT Batteries, secondary
(Li; **electrode**-electrolyte **assembly** in secondary nonaq. lithium batteries)

IT Epoxides
(electrode-electrolyte laminate; **electrode**-electrolyte **assembly** in secondary nonaq. lithium batteries)

IT Electrodes
(battery, electrode-electrolyte laminate; **electrode**-electrolyte **assembly** in secondary nonaq. lithium batteries)

IT 7439-93-2, Lithium, uses
(anode, laminate; **electrode**-electrolyte **assembly** in secondary nonaq. lithium batteries)

IT 1313-13-9, Manganese oxide, uses 1313-99-1, Nickel oxide, uses 11099-11-9, Vanadium oxide 11104-61-3, Cobalt oxide 11105-02-5, Silver vanadium oxide
(cathode, laminate; **electrode**-electrolyte **assembly** in secondary nonaq. lithium batteries)

IT 9002-88-4, Polyethylene 9003-07-0, Polypropylene
(electrode-electrolyte laminate separator; **electrode**-electrolyte **assembly** in secondary nonaq. lithium batteries)

IT 7791-03-9, Lithium perchlorate 14283-07-9 21324-40-3, Lithium hexafluorophosphate 24937-79-9, Poly(vinylidenefluoride) 24969-06-0, Poly(epichlorohydrin) 25322-68-3, Polyethylene oxide 25322-69-4, Polypropylene oxide 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate

(electrode-electrolyte laminate; **electrode**-electrolyte **assembly** in secondary nonaq. lithium batteries)

L22 ANSWER 38 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
1994:537534 Document No. 121:137534 Metal-air batteries comprising collapsible foam members and means for minimizing internal pressure buildup. Woodruff, Glenn; Putt, Ronald A. (Matsi, Inc., USA). U.S. US 5328778 A 19940712, 18 pp. Cont.-in-part of U.S. Ser. No. 809,196, abandoned. (English). CODEN: USXXAM. APPLICATION: US 1993-105354 19930810. PRIORITY: US 1991-809196 19911216.

AB A **prismatic** Zn-air **battery** includes, in general, a **prismatic** container having an air cathode, a separator, and a Zn anode. The container has ≥1 O access openings, and the air cathode is disposed in the container in gaseous communication with the O access openings so as to allow access of O to the cathode. The separator has a 1st side in electrolytic **communication** with the air **cathode** and a 2nd side in electrolytic **communication** with the Zn **anode.** The separator isolates the cathode and the Zn anode from direct elec. contact and allows passage of electrolyte between them. An expansion chamber adjacent to the Zn anode is provided which accommodates expansion of the Zn anode during discharge of the battery. A suitable collapsible foam member generally occupies the expansion space, providing sufficient resistance tending to oppose movement of the Zn anode away from the separator while collapsing on expansion of the Zn anode during discharge of the battery. One or more vent openings disposed in the container are in gaseous communication with the expansion space, functioning to satisfactorily minimize the pressure buildup within the container by venting gases expelled as the foam collapses during battery discharge.

IC ICM H01M002-12
ICS H01M012-06
NCL 429027000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

L22 ANSWER 39 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
1992:515124 Document No. 117:115124 Thin film **rechargeable** room temperature **batteries** using solid redox polymerization electrodes. Doeff, M. M.; Visco, S. J.; De Jonghe, L. C. (Lawrence Berkeley Lab., Univ. California, Berkeley, CA, 94720, USA). Journal of the Electrochemical Society, 139(7), 1808-12 (English) 1992. CODEN: JESOAN. ISSN: 0013-4651.

AB Thin-film solid-state batteries consisting of Li foil, amorphous PEO separator, and solid redox polymer **electrodes** (SRPEs) were **assembled**, discharged, and cycled at room temp. No solvents were added to any of the components, nor were structural additives used. The performance was studied as a function of cathode

thickness and compn. of separator and SRPE. At 50 μA/cm2, the cells could be discharged to a depth of 0.6-1.3 C/cm2 (C = nominal capacity), at 100 μA/cm2 to a depth of 0.5 C/cm2, and at 200 μA/cm2 to a depth of 0.25 C/cm2. It was also possible to pulse batteries at high c.d. for short periods of time (0.1-3 s) with instantaneous recovery of open-circuit potential after the pulses. One cell was cycled 100 times, with inadvertent overdischarge and overcharge, before significant deterioration of performance occurred. Batteries may be designed to be paper thin, or may consist of several cells stacked to give a somewhat thicker device. Practical energy and power densities were calcd. as a function of component dimensions (cathode and current collector thicknesses) for paper thin batteries consisting of Li anodes, amorphous PEO separators, SRPEs, and metalized plastic current collectors. Power d. of 30 W/L (continuous discharge) and pulse (0.1 s) power d. of >1000 W/L may be achieved for these ultrathin devices.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 72

L22 ANSWER 40 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
1984:426201 Document No. 101:26201 Dosing of electrolyte in batteries. Kruppa, Rudolf; Katzer, Juergen (Ger. Dem. Rep.). Ger. (East) DD 206452 A1 19840125, 7 pp. (German). CODEN: GEXXA8. APPLICATION: DD 1981-234348 19811026.

AB A process for dosing electrolyte in **batteries** (**prismatic** or button-type) with no free, but limited electrolyte amt. is disclosed. The battery comprising **anodes**, **cathodes**, and separators is **assembled** in dry state, the electrolyte is admitted until satn. in electrolyte excess results, and the optimum electrolyte amt. is controlled by centrifuging. Thus prepd. batteries had an .apprx.10% longer av. lifetime than batteries prepd. by conventional processes.

IC H01M010-10

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 72

L22 ANSWER 41 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
1981:518439 Document No. 95:118439 **Rechargeable** air-iron **batteries**. (Agency of Industrial Sciences and Technology, Japan). Jpn. Tokkyo Koho JP 56016950 B4 19810420 Showa, 3 pp. (Japanese). CODEN: JAXXAD. APPLICATION: JP 1975-149117 19751216.

AB The title batteries consist of an air or O diffusion-type cathode, an Fe anode, an auxiliary electrode for charging the anode, and a S2--contg. alk. electrolyte. The cathode is a sintered Ni electrode cementation coated with a Pd-Au mixt. The Pd conc. is high at the electrode-coating interface and the Au concn. is high on the electrode surface. Thus, an air-Fe battery was constructed with 1

auxiliary electrode, an Fe electrode on each side of the auxiliary electrode, a separator for each Fe electrode, an air **electrode**-container **assembly**, and a 30% KOH electrolyte contg. 0.5 g K2S/L.
IC H01M004-90
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

L22 ANSWER 42 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
1979:140140 Document No. 90:140140 **Rechargeable** sealed **battery**. (N. V. Philips' Gloeilampenfabrieken, Neth.). Belg. BE 864453 19780901, 14 pp. (French). CODEN: BEXXAL. APPLICATION: BE 1978-185587 19780301.
AB A sealed secondary battery comprises a cathode, a hydride-forming alloy anode, and an alk. electrolyte. The quantity of active material in the anode is greater than in the cathode, and in the completely discharged state of the cathode the electrochem. active mass of the anode is partly present as hydride. Thus, a stainless steel closed cylinder (22 + 41 mm) contains a cylindrical roll of interlayered **bands** comprising the anodes and cathodes with the sepg. insulation, e.g., a 1:1 mixt. of sintered Cu and LaNi4Cu on a Ni foil support, sepd. by PVC satd. with 5N KOH (as electrolyte) from a film of Ni(OH)2. The **electrode connections** pass through the steel cover through plastic insulating rings. Prior to sealing off the electrodes, the battery is charged with 50 cm3 H which, after charging and discharging the battery 5 times, is adsorbed by the LaNi4Cu. The battery has an emf. of 1.3 V and can be recharged repeatedly without passivation or risk of explosion.
IC H01M
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

L22 ANSWER 43 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
1978:532464 Document No. 89:132464 High power, **rechargeable**, pile type silver-zinc **battery**. Erisman, Lester R.; Marsh, Richard A. (United States Dept. of the Air Force, USA). U.S. US 4091184 19780523, 4 pp. (English). CODEN: USXXAM. APPLICATION: US 1977-826225 19770819.
AB A high-rate secondary Ag-Zn pile-type battery includes a plurality of bipolar **electrodes** which are **assembled** into a full-scale multicell pile. Each of the bipolar electrodes consists of a cathode side of a porous Ag matrix attached to a Ag foil, and an anode side of a porous Zn structure vapor deposited on the foil. A 3-component layered separator is disposed between the cathode and anode sides of the electrode. Intercell connectors of etched Ag foil serve as the battery case and active material substrate as well as the series connection between individual cells for elec. continuity.
IC H01M010-32

NCL 429139000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

L22 ANSWER 44 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
1976:153091 Document No. 84:153091 Operation of iron-oxygen battery. Fukuda, Masataro; Iwaki, Tsutomu; Eguchi, Toshihide; Mori, Masanori (Matsushita Electric Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 50095740 19750730 Showa, 3 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1974-2752 19731226.

AB An Fe-air battery has a detachable electrode made of high-purity Fe [7439-89-6]. After battery discharging, the electrode is reduced for recharging. This recharging method increases the discharging capacity of the electrode as compared with the conventional recharging by electrolysis. Thus, Fe hydroxide oxide was reduced at 800° in H, pulverized, pressed into an electrode (140 + 135 + 20 mm), and sintered. A battery was **assembled** from the Fe **electrode**, Pd-contg. air electrode, and 30% KOH. After discharging, the Fe electrode was removed, washed with H2O, treated with alc., dried, and reduced at 950° for 30 min in H. The reduced electrode was reused. The discharge capacity of the **recharged battery** was 80% of that of the new one. The resp. value for a battery with an Fe electrode which was recharged by the conventional electrolytic method was 30%.

IC H01M
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT Anodes
(**battery**, iron air-, **recharging** of)
IT **Batteries**, secondary
(iron-air, **recharging** of)
IT 7439-89-6, uses and miscellaneous
(anodes, air-**battery**, **recharging** of)

L22 ANSWER 45 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
1972:93879 Document No. 76:93879 Making and operating a gas-depolarized cell. Yardney, Michel N.; Kohen, Nuri U.S. US 3632449 19720104, 5 pp. (English). CODEN: USXXAM. APPLICATION: US 1969-837652 19690630.

AB A battery of the metal/gas-electrode type includes a gas-depolarizable cathode forming ≥1 pocket or passage open to the outside with a slot (or a pair of opposite slots) in the cell housing. The cathode is in fluidtight contact with the slotted housing and subdivides the interior of the housing into a gas passage or compartment and a surrounding electrolyte compartment. The anode plates are disposed in the electrolyte compartment and may be interconnected to form a unit detachable from the cathode upon withdrawal of the **electrode assembly** from the housing. The housing may be split into separably interfitting parts. The depolarizing gas circulates through the interior of the

housing by thermal convection.
IC H01M
NCL 136086000A
CC 77 (Electrochemistry)
IT 7440-02-0, uses and miscellaneous
(cathodes, for **recharging** of gas-depolarized secondary **battery**)

L22 ANSWER 46 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
1970:106592 Document No. 72:106592 Hybrid gas-depolarized electrical power unit. Weissman, Eugene Y. (General Electric Co.). U.S. US 3497388 19700224, 6 pp. (English). CODEN: USXXAM. APPLICATION: US 1965-517717 19651230.
AB The battery consists of an upper and lower housing sepd. by gas-permeable, liq.-impermeable barrier which may be in the form of a printed circuit contg. series connectors for connecting the individual cells formed in series. The upper housing contains electrolyte in the form of an ion-exchange membrane and electrodes sepd. by spacers. The lower housing contains anode plates enveloped by a contiguous filter. Prior to use, electrolyte is introduced into the lower housing. If the generated energy is not utilized, a dummy load is placed across the **electrode**-electrolyte **assembly** in the upper housing to prevent H gas buildup. Air electrodes and anodes of metals which liberate H on contact with aq. electrolytes are used with either acidic or alk. electrolytes. The filter holds the ppt. formed by the anode reaction. These batteries can be quickly and repeatedly reactivated without elec. charging.
IC H01M
NCL 136083000
CC 77 (Electrochemistry)
IT **Batteries**, primary
(metal-air, mechanically **rechargeable**)

L22 ANSWER 47 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
1969:497767 Document No. 71:97767 **Rechargeable**, air-electrode **electrochemical cell** with a finely divided metal electrode and ion-exchange membrane separators. Grund, Alfred; Vignaud, Rene; Gilbaud, Fernand (Societe les Piles Wonder). Fr. Addn. FR 91138 19680419, 4 pp. Addn. to Fr. 1492204 (French). CODEN: FAXXA3. APPLICATION: FR 19661017.
AB The finely divided metal (e.g. Zn) neg. electrode is sandwiched between 2 insulating separators made of ion-exchange membranes. The neg. **electrode**-separator **assembly** is sandwiched between 2 thin pos. air electrodes. The electrolyte, preferably alk., which is a constituent of the finely divided metallic mass and (or) of the separators, fills the 2 compartments between the neg. **electrode assembly** and the air **electrodes**. The electrolyte is circulated between these compartments and an

external reservoir.
IC H01M
CC 77 (Electrochemistry)
ST **batteries rechargeable; rechargeable batteries;** air electrodes; electrodes air

L22 ANSWER 48 OF 48 HCAPLUS COPYRIGHT 2004 ACS on STN
1968:101251 Document No. 68:101251 Spiral battery cell. Wagner, Otto C.; Di Pasquale, Renato (Yardney International Corp.). U.S. US 3377201 19680409, 8 pp. (English). CODEN: USXXAM. APPLICATION: US 1964-354261 19640324.
AB A **rechargeable electrochem. battery cell** is described consisting of a juxtaposed **assembly** of a pos. **electrode,** an electrolyte absorbable ionically separator, and a neg. electrode spirally wound around an elec. conductive core (or a hollow core). The unit can be hermetically sealed. Auxiliary gas recombining electrodes are provided, and a gas relief and an automatic pressure sensitive shut-down switch are incorporated into the design. Capacity loss is decreased and the electrode edge-to-surface ratio is small (decreasing mech. deterioration), densification of the active material is reduced, creeping or shedding of electrode material is reduced, and the electrolyte is conserved by confinement within a restricted vol. The no. of recharging cycles is increased over conventional cells.
NCL 136013000
CC 77 (Electrochemistry)
ST **BATTERY RECHARGEABLE;** STORAGE BATTERY; SPIRAL STORAGE BATTERY

=> d l35 1-4 max

L35 ANSWER 1 OF 4 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2004-080013 [08] WPIX
CR 1996-029799 [03]; 1999-203936 [17]; 2003-874182 [81]
DNN N2004-063919 DNC C2004-032675
TI Mechanically improved **rechargeable battery** for, e.g. fork lift, comprises battery case comprising positive and negative electrode **terminals,** positive electrode(s), negative electrode(s), **separator**(s) and battery electrolyte.
DC A85 L03 W04 X16 X21 X25
IN CORRIGAN, D A; DHAR, S K; FILLMORE, D; GOW, P; HIGLEY, L; HIMMLER, R; HOLLAND, A; KARDITSAS, N; LAMING, K; OSGOOD, A; OVSHINSKY, S R; VENKATESAN, S
PA (CORR-I) CORRIGAN D A; (DHAR-I) DHAR S K; (FILL-I) FILLMORE D; (GOWP-I) GOW P; (HIGL-I) HIGLEY L; (HIMM-I) HIMMLER R; (HOLL-I)

HOLLAND A; (KARD-I) KARDITSAS N; (LAMI-I) LAMING K; (OSGO-I) OSGOOD A; (OVSH-I) OVSHINSKY S R; (VENK-I) VENKATESAN S

CYC 1

PI US 2002182493 A1 20021205 (200408)* 35p H01M002-02

ADT US 2002182493 A1 CIP of US 1993-140933 19931025, Div ex US 1995-544223 19951017, Div ex US 1999-264116 19990308, US 2002-121279 20020412

FDT US 2002182493 A1 CIP of US 5472802, Div ex US 5879831, Div ex US 6372377

PRAI US 1995-544223 19951017; US 1993-140933 19931025; US 1999-264116 19990308; US 2002-121279 20020412

IC ICM H01M002-02
ICS H01M002-08; H01M002-12; H01M010-50

AB US2002182493 A UPAB: 20040202
NOVELTY - A mechanically improved **rechargeable battery** comprises:
(i) a battery case comprising a positive and a negative electrode **terminal**;
(ii) positive **electrode**(s) electrically **connected** to the positive **electrode terminal**;
(iii) negative **electrode**(s) electrically **connected** to the negative **electrode terminal**;
(iv) **separator**(s) between the positive and negative electrodes; and
(v) battery electrolyte in the case.
DETAILED DESCRIPTION - A mechanically improved **rechargeable battery** comprises:
(a) a battery case comprising a positive and a negative electrode **terminal** (7, 8);
(b) positive electrode(s), in the case, electrically **connected** to the positive **electrode terminal**;
(c) negative electrode(s), in the case, electrically **connected** to the negative **electrode terminal**;
(d) **separator**(s) between the positive and negative electrodes (4, 5); and
(e) battery electrolyte in the case.
The **separator** electrically insulates the positive electrode from the negative electrode, while allowing for chemical interaction between the positive and negative electrodes. The battery electrolyte surrounds and wets the positive electrode, the negative electrode and the **separator**. The **battery** case is **prismatic** in shape and has an optimized thickness to width to height aspect ratio.
An INDEPENDENT CLAIM is included for a **rechargeable**

battery system formed from at least one interconnected **rechargeable battery**, exposed to ambient thermal condition, so as to develop a degradative thermal operating temperature in the rechargeable system, comprising a mechanism for providing variable thermal insulation to at least that portion of the **rechargeable battery** system which is most directly exposed to the ambient thermal condition, so as to maintain the temperature of the **rechargeable battery** system within the desired operating range under variable ambient conditions.

USE - Useful in a variety of industrial and commercial applications, i.e. fork lifts, golf carts, uninterruptible power supplies and electric vehicles.

ADVANTAGE - The **rechargeable battery** has mechanically and thermally improved battery design, battery module design, and battery pack design.

DESCRIPTION OF DRAWING(S) - The figure shows a stylized depiction of an exploded, cross-sectional view of the mechanically improved **rechargeable battery**, specifically illustrating how many of the battery components interact when assembled.

Positive and negative electrodes 4, 5

Positive and a negative electrode **terminal** 7, 8

Dwg.2/26

TECH US 2002182493 A1UPTX: 20040202

TECHNOLOGY FOCUS - ELECTRICAL POWER AND ENERGY - Preferred Device: The improved **rechargeable battery** further comprises comb(s) that forms an electrical **connection** between internal **electrode** tabs and the **terminals** . It comprises 19 positive electrodes and 20 negative electrodes alternatingly disposed within the case.

Preferred Material: The battery case is formed from a material which is thermally conductive, mechanically strong and rigid, and resistant to corrosion.

Preferred Component: The mechanism for providing variable insulation includes temperature sensor, compressible thermal insulation mechanism, and a mechanism to compress the compressible thermal insulation mechanism in response to the temperature detected by the thermal sensor. The mechanism to compress the compressible thermal insulation mechanism includes a piston which variably increases or decreases the compression upon the compressible foam or fiber insulation in response to signals from electronic sensors. The thermal sensors and the mechanism to compress the compressible thermal insulation mechanism are combined as a single unit. The thermal-sensor/insulation-compressor single unit includes a bimetallic **strip** which allows the compressible thermal insulation mechanism to expand into place to protect the battery system from cold ambient conditions and compresses the insulation to

remove its insulating effect from the battery system under warm ambient conditions.
Preferred Condition: The exterior of the metal **prismatic battery** case is electrically insulated from the environment by a non-conductive polymer coating. The interior of the metal **prismatic battery** case is electrically insulated from the electrodes and electrolyte by coating the interior of the battery case with an electrically insulating polymer material; or by placing the electrodes and electrolyte in a polymer bag which is sealed and inserted into the battery case.

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Material: The **prismatic battery** case is formed from metal (preferably stainless steel, particularly 304L stainless steel). The comb and the **terminals** are formed of copper, copper alloy, nickel coated copper or nickel coated copper alloy.
Preferred Component: The negative electrodes are formed from thermally conductive sintered metal hydride electrode material.

TECHNOLOGY FOCUS - INSTRUMENTATION AND TESTING - Preferred Component: The thermal sensors comprise electronic sensors.

TECHNOLOGY FOCUS - POLYMERS - Preferred Component: The polymer coating is a layer of electrically insulating polymer tape. The compressible thermal insulation mechanism includes a compressible foam or fiber insulation. The elastomeric, dielectric seal is formed of a hydrogen impermeable polysulfone material. The **separators** are formed from polypropylene having an oriented grain or groove structure.

FS CPI EPI
FA AB; GI
MC CPI: A04-G03E; A05-J06; A12-E06B; L03-E01B; L03-E01D1
EPI: W04-X01F; X16-B01; X16-F01; X16-F03B; X16-K; X21-A01B; X21-A01E; X21-B01A; X25-F05A
PLE UPA 20040202
[1.1] 2004; P0000; S9999 S1070-R; S9999 S1309-R
[1.2] 2004; P0000; S9999 S1650 S1649
[1.3] 2004; ND01; Q9999 Q7341 Q7330; Q9999 Q7374-R Q7330; B9999 B3270 B3190
[1.4] 2004; Q9999 Q7385 Q7374 Q7330
[2.1] 2004; P1490-R F61 D01; H0124-R
[2.2] 2004; ND01; Q9999 Q7341 Q7330; Q9999 Q7374-R Q7330; B9999 B3270 B3190
[2.3] 2004; Q9999 Q9018; B9999 B3203-R B3190; B9999 B4864 B4853 B4740
[3.1] 2004; R00964 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D83; H0000; P1150; P1343
[3.2] 2004; ND01; Q9999 Q7341 Q7330; Q9999 Q7374-R Q7330; B9999

B3270 B3190
[3.3] 2004; B9999 B5152-R B4740

L35 ANSWER 2 OF 4 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2000-107948 [10] WPIX
CR 1995-330140 [43]
DNN N2000-083024 DNC C2000-032613
TI Battery e.g., nickel-cadmium, nickel hydride or **rechargeable** lithium ion **battery** with improved high-rate discharge characteristics.
DC L03 X16
IN AKAZAWA, T; GOTOU, Y; TADOKORO, M; TAGAWA, H; YOSHIDA, T; GOTO, Y
PA (SAOL) SANYO ELECTRIC CO LTD
CYC 30
PI EP 969538 A1 20000105 (200010)* EN 23p H01M006-10
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI
JP 2000021435 A 20000121 (200015) 9p H01M010-04
CN 1242613 A 20000126 (200024) H01M002-26
KR 2000005695 A 20000125 (200063) H01M010-02
TW 425730 A 20010311 (200143) H01M010-00
US 6284408 B1 20010904 (200154) H01M002-26
EP 969538 B1 20020904 (200266) EN H01M006-10
R: DE FR GB
DE 69902721 E 20021010 (200274) H01M006-10
ADT EP 969538 A1 EP 1999-112294 19990625; JP 2000021435 A JP 1998-184939 19980630; CN 1242613 A CN 1999-107948 19990604; KR 2000005695 A KR 1999-18372 19990521; TW 425730 A TW 1999-110117 19990616; US 6284408 B1 US 1999-340129 19990628; EP 969538 B1 EP 1999-112294 19990625; DE 69902721 E DE 1999-602721 19990625, EP 1999-112294 19990625
FDT DE 69902721 E Based on EP 969538
PRAI JP 1998-184939 19980630
IC ICM H01M002-26; H01M006-10; H01M010-00; H01M010-02; H01M010-04
ICS H01M002-34; H01M004-02; H01M004-80; H01M006-02
AB EP 969538 A UPAB: 20000228
NOVELTY - The second electrode plate (72) projects out beyond the active material border of the connecting **band** and the active material region, and the active material border is opposite the second electrode plate (72) with the separator (73) in between.
DETAILED DESCRIPTION - The battery has an **electrode assembly** with a first **electrode** plate (71) and second electrode plate (72) forming a positive electrode plate and negative electrode plate layered via a separator (73). An external case (75) holds the **electrode assembly** (74) and a collector plate (76) is electrically connected to plate (71). Plate (71) is a non-sintered type electrode with active material loaded into a porous metal material substrate, and has a connecting **band** of exposed substrate and an active material region.

Connecting **band** is electrically connected to plate (76).

USE - None given.

ADVANTAGE - Battery has improved high-rate discharge characteristics. Internal short circuits between the electrode plates (71, 72) can be drastically reduced. If material with holes or openings such as punched metal etc. is used as the thin metal plate, sufficient flexibility is attained, thin metal plate fracture does not occur even when the **electrode assembly** is wound into a spiral shape, and internal short circuits are prevented with extreme effectiveness.

DESCRIPTION OF DRAWING(S) - The diagram shows a part view partly in cross section of an embodiment of the battery.

First electrode plate 71

Second electrode plate 72

Separator 73

Electrode assembly 74

External case 75

Collector plate 76

Lead plate 76A

Thin metal plate 710

Sealing lid 711

Terminal 712

Dwg.7/21

TECH EP 969538 A1 UPTX: 20000228

TECHNOLOGY FOCUS - ELECTRICAL POWER AND ENERGY - Preferred Battery: The **electrode assembly** is a spiral **electrode** with the first electrode plate (71) and second electrode plate (72) layered via the separator (73) and wound into a spiral shape. The **electrode assembly** is wound with a thin metal plate (710) welded to the inside of the connecting **band.**

First electrode connecting **band** is either a region with loaded active material removed to expose the substrate or a region with no active material loaded exposing the substrate. The first electrode substrate is a metal material with three dimensional porosity, a thin metal plate (710) is attached to the connecting **band** of the porous metal substrate and the plate (710) is welded to collector plate (76). Plate (710) is electrically connected to connecting **band** via conductive adhesive.

The amount of overlap of the end of second electrode plate over first electrode plate active material border is 0.3 - 1.5 mm (preferably 0.5 - 1 mm). Protective tape is attached to one or both sides of first electrode plate connecting **band.** The bottom end of the protective tape extends below the first electrode plate active material border.

The three dimensionally porous metal substrate is pressed at the connecting **band** to compress it to high density.

The collector plate (76) is perforated with holes, projections

extend downward from the periphery of the holes and these projections connect with the first electrode plate connecting **band.**

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Materials: The battery is a nickel hydride battery, a nickel cadmium **battery** or a **rechargeable** lithium ion **battery.** The first electrode plate (71) substrate is a metal material e.g., foamed nickel porous material, nickel fiber porous material. The thin metal plate (710) is nickel ribbon.

FS CPI EPI
FA AB; GI
MC CPI: L03-E02; L03-E03
EPI: X16-B01; X16-E02

L35 ANSWER 3 OF 4 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1998-459112 [40] WPIX
DNN N1998-358529
TI Battery for portable communication equipment - has electrolytic core between laminar electrodes in rectangular frame with **terminals** accessible in one side.
DC X16
IN VAN LERBERGHE, S
PA (PHIG) KONINK PHILIPS ELECTRONICS NV; (PHIG) PHILIPS GLOEILAMPENFAB NV; (PHIG) US PHILIPS CORP
CYC 26
PI EP 863564 A1 19980909 (199840)* FR 11p H01M010-04
R: AL AT BE CH DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI
JP 10255734 A 19980925 (199849) 7p H01M002-06
US 6120935 A 20000919 (200048) H01M006-12
EP 863564 B1 20020605 (200238) FR H01M010-04
R: DE FR GB
DE 69805683 E 20020711 (200253) H01M010-04
ADT EP 863564 A1 EP 1998-200398 19980209; JP 10255734 A JP 1998-33026 19980216; US 6120935 A US 1998-24636 19980217; EP 863564 B1 EP 1998-200398 19980209; DE 69805683 E DE 1998-605683 19980209, EP 1998-200398 19980209
FDT DE 69805683 E Based on EP 863564
PRAI FR 1997-1884 19970218
IC ICM H01M002-06; H01M006-12; H01M010-04
ICS H01M002-02; H01M002-20; H01M002-26; H01M002-30
AB EP 863564 A UPAB: 19981008
The battery has a cell (100) sealed in an insulating pocket (51). The cell is formed by sandwiching a flat **porous separator** (12) impregnated with electrolyte (13) between laminar electrodes (16,18) with end tabs (26,28). The pocket comprises a rectangular frame (71,72) sealed by flexible insulating

sheets (70a,70b). The frame has a broad side (72a,72b) whose superimposed half thicknesses (72) hold robust contact **strips** (36,38) sealed between them, forming the positive and negative **terminals.**

These **strips** are soldered to the tabs and are made of a non corroding, high conductivity metal. They are accessed through apertures (1a,1b) in the frame. Two other aperture (1c,1d), which expose unconnected contact **strips** (6c,6d), allow cells to be connected using small linking connectors. A fifth, empty, aperture (1e) can accommodate associated electronic elements, such as a relief vent.

USE - Especially **rechargeable batteries** for portable telephones.

ADVANTAGE - Prevents electrode deterioration, and allows easy contact of the tabs with the electrodes.

Dwg.1,2b/6

FS EPI
FA AB; GI
MC EPI: X16-B01; X16-F01; X16-F03A

L35 ANSWER 4 OF 4 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1991-058266 [08] WPIX
CR 1990-192921 [25]
DNN N1991-045091 DNC C1991-024620
TI Sealed **rechargeable** nickel electrode contg. **electrochemical cell** - with improved coulombic cell capacity and extended life.
DC L03 X16
IN CATOTTI, A J; FRYE, D B; PENSABENE, S F; PUGLISI, V J; FRYE, D; PUGLISI, V
PA (GATE) GATES ENERGY PROD INC; (GATE-N) GATES ENERGY PRODUCTS INC
CYC 7

PI	WO 9101573	A	19910207 (199108)*			
	AU 9061428	A	19910222 (199120)			
	EP 436004	A	19910710 (199128)			
	BR 9006860	A	19910806 (199136)			
	US 5106707	A	19920421 (199219)		11p	
	US 5141523	A	19920825 (199237)		10p	H01M004-20
	CA 2037898	C	19940524 (199426)			H01M004-20
	EP 436004	B1	19950913 (199541)	EN	15p	H01M010-34
	DE 69022383	E	19951019 (199547)			H01M010-34
	ES 2079482	T3	19960116 (199610)			H01M010-34
	KR 9507533	B1	19950711 (199715)			H01M010-34

ADT EP 436004 A EP 1990-911515 19900713; US 5106707 A US 1990-529084 19900525; US 5141523 A CIP of US 1989-383376 19890720, Div ex US 1990-529084 19900525, US 1991-719459 19910624; CA 2037898 C CA 1990-2037898 19900713; EP 436004 B1 EP 1990-911515 19900713, WO 1990-US3947 19900713; DE 69022383 E DE 1990-622383 19900713, EP

1990-911515 19900713, WO 1990-US3947 19900713; ES 2079482 T3 EP 1990-911515 19900713; KR 9507533 B1 WO 1990-US3947 19900713, KR 1991-700289 19910318

FDT US 5106707 A CIP of US 4929519; US 5141523 A CIP of US 4929519, Div ex US 5106707; EP 436004 B1 Based on WO 9101573; DE 69022383 E Based on EP 436004, Based on WO 9101573; ES 2079482 T3 Based on EP 436004

PRAI US 1990-529084 19900525; US 1989-383376 19890720; US 1989-303376 19890720; US 1991-719459 19910624

REP 1.Jnl.Ref; GB 1197461; JP 56102065; US 4460666; GB 1197468

IC ICM H01M004-20

ICS H01M004-24; H01M004-70; H01M006-10; H01M010-34

AB WO 9101573 A UPAB: 19950927

A sealed **rechargeable electrochemical cell** comprises a Ni positive electrode, a separator between positive and negative electrodes, and an electrolyte. A pasted negative counter electrode substrate has an electrochemically active material secured to a face, and is non-foraminous, i.e. the normal tendency of the Ni electrode to swell is retarded. Pref. the substrate is an imperforate sheet provided with means to enhance adhesion between the active material and the substrate. Also disclosed is a method of cell construction using a cylindrical multicomponent container.

One component of the container serves as the negative **terminal.** An end portion of the nonforaminous substrate of the negative electrode is free of active material on its face, and makes conductive contact with the negative cell **terminal.** The electrode and separator are spirally wound inside the container. The negative counter electrode is pref. Cd.

Preparing a negative electrode plate is also disclosed, and comprises applying a paste mixt. of electrochemically active material onto a **strip** in a continuous process.

USE/ADVANTAGE - Sealed Ni electrode-contg. electrochemical cell with improved coulombic cell capacity and performance characteristics. Cell life is extended by retarding the tendency of the Nielectrode to swell thus reducing short circuiting. @(27pp Dwg.No.1/6)@

1/6

ABEQ US 5106707 A UPAB: 19930928

Sealed **rechargeable electrochemical cell** has a container (12) housing a wound **electrode assembly** (20) composed of a positive electrode plate (30) contg. electrochemically active Ni hydroxide, a negative counter electrode plate (40), and a porous flexible interleaved separator material (50) positioned on each face of the positive electrode. The negative electrode plate is a pasted plate formed by attaching electrochemically active material (42) to each side of a substrate (15) which lacks micro-holes or perforations.

ADVANTAGE - Tendency of the Ni electrode to swell is retarded.

ABEQ US 5141523 A UPAB: 19930928
A negative electrode for use in a rechargeable nickel electrode containing cell is prepd. by advancing a **conductive strip substrate** through a paste coater. At least part of the **strip** is nonforaminous. Coating is such that both faces of the **strip** are coateed with paste along one line and only one face is coated along a second line leaving a **strip** of uncoated base substrate. The pasted **strip** is then transversely severed into multiple component **strips** each adapted to make electrical contact to the cell **terminal** .

ADVANTAGE - By using a nonforaminous **conductive substrate** the problems caused by growth or swelling of the electrode during repeated cycling is reduced.
4/6

ABEQ EP 436004 B UPAB: 19951019
A sealed **rechargeable electrochemical cell** (10) having a nickel positive electrode (30), a pasted negative counter electrode (40) comprising an electrically **conductive substrate** (15) and an electrochemically active material (42) secured through adhesion to at least one face of the substrate, a separator (50) interposed between the positive and negative electrodes, and an electrolyte, characterised by: the nickel positive electrode being formed of a porous **conductive substrate** (34) defining passageways laterally across the positive **electrode** through which the electrolyte **communicates**, and an electrochemically active nickel based material adhered to the substrate and interconnected through the passageways to opposite sides of the positive electrode; and the electrically **conductive substrate** of the pasted negative electrode having microholes therethrough, of a cross dimension less than about 200 percent of the distance from the surface of the substrate to the adjacent surface of the nickel positive electrode, and the electrically **conductive substrate** of the pasted negative electrode having microholes therethrough of a cross dimension less than about 200 percent of the distance from the surface of the substrate to the adjacent surface of the nickel positive electrode, whereby, in charging of the cell, the normal tendency of the nickel electrode to swell is retarded.
Dwg.1/6

FS CPI EPI
FA AB; GI
MC CPI: L03-E01B4
EPI: X16-E05

=> d l36 1-33 max

L36 ANSWER 1 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2004-006936 [01] WPIX
TI **Prismatic** sealed **battery.**
DC X16
IN KIM, B G; LEE, J U
PA (SMSU) SAMSUNG SDI CO LTD
CYC 1
PI KR 2003066961 A 20030814 (200401)* 1p H01M002-20
ADT KR 2003066961 A KR 2002-6739 20020206
PRAI KR 2002-6739 20020206
IC ICM H01M002-20
AB KR2003066961 A UPAB: 20040102
NOVELTY - A **prismatic** sealed **battery** which can prevent the short circuit previously is provided to increase the safety of the battery.
DETAILED DESCRIPTION - The **prismatic** sealed **battery** comprises: a **battery** part(22) in which a cathode plate, a **separator** and an anode plate are wound in turn; a can(21) which encloses the battery part(22) and has an insulating layer formed in the inner wall thereof; a cap plate(27) positioned at the top of the can(21) and bonded to the can(21); an electrode **terminal**(200) mounted inside of the can(21) through a hole-through(27a) formed in the cap plate(27) which has a gasket(210) for insulating from the cap plate(27); a first electrode tab(23) drawn out from one of the electrode plates of the battery part and electrically **connected** to the **electrode terminal**; and a second electrode tab(24) drawn out from the other **electrode** plate and electrically **connected** to the cap plate(27) or the can(21).
Dwg.1/10
FS EPI
FA AB; GI
MC EPI: X16-F03

L36 ANSWER 2 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2003-777980 [73] WPIX
DNN N2003-623475 DNC C2003-214033
TI Primary alkaline battery comprises metal elongated housing, positive and negative **terminal**, and individual alkaline cells encased in hydrogen permeable casing.
DC A85 L03 X16
IN BOBOWICK, D R; FERRIN, R S; SHELEKHIN, A; SPECHT, S J
PA (BOBO-I) BOBOWICK D R; (FERR-I) FERRIN R S; (SHEL-I) SHELEKHIN A; (SPEC-I) SPECHT S J; (GILL) GILLETTE CO
CYC 102
PI US 2003157403 A1 20030821 (200373)* 17p H01M002-08
WO 2003073528 A2 20030904 (200373) EN H01M000-00
RW: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT

KE LS LU MC MW MZ NL OA PT SD SE SI SK SL SZ TR TZ UG ZM ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ
DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP
KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ
NO NZ OM PH PL PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ
UA UG US UZ VC VN YU ZA ZM ZW

ADT US 2003157403 A1 US 2002-80294 20020221; WO 2003073528 A2 WO 2003-US4115 20030211

PRAI US 2002-80294 20020221

IC ICM H01M000-00; H01M002-08
ICS H01M006-04; H01M006-46

AB US2003157403 A UPAB: 20031112

NOVELTY - A primary alkaline battery comprises a metal elongated housing, a positive and a negative **terminal**, and individual alkaline cells. The alkaline cells are encased in a hydrogen permeable casing and are electrically connected in parallel to the positive and negative **terminals** (124, 107). The cells and the casing are housed within the interior of the metal elongated housing.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for an alkaline battery with only one alkaline cell, comprising a metal elongated housing (105) having a major portion of its surface flat. The alkaline cell is contained within the interior of the metal housing. The cell comprises an anode slab (140), a cathode slab (160), and a **separator** (150) in between. The **anode** and the **cathode** are **stacked** in a body-to-body arrangement with the **separator** in between. The cell has a pair of opposing major outer surfaces. At least one of the major outer surfaces is polygonal. The opposing major surfaces forms a portion of the anode and the other forms a portion of the cathode. A peripheral edge surface of the cell lies between the pair of opposing major outer surfaces. The cell is encased in a casing. The cell and the casing are housed within the interior of the metal elongated housing.

USE - As a primary alkaline battery, particularly as a primary non-**rechargeable battery**.

ADVANTAGE - The primary alkaline battery can be used interchangeably with the nickel metal hydride battery to power small electronic devices, i.e. mini disk or MP3 (sic.) players.

DESCRIPTION OF DRAWING(S) - The figure shows an exploded view of the components of the flat alkaline battery having a single cell.
Housing 105
Positive and negative **terminals** 124, 107
Anode slab 140
Separator 150
Cathode slab 160
Dwg.1/3

TECH US 2003157403 A1UPTX: 20031112

TECHNOLOGY FOCUS - POLYMERS - Preferred Material: The hydrogen permeable casing comprises plastic. The plastic casing comprises **porous** polyethylene, **porous** polypropylene, nylon, or polysulfone.

TECHNOLOGY FOCUS - ELECTRICAL POWER AND ENERGY - Preferred Component: Each cell comprises an anode comprising zinc, a cathode comprising manganese dioxide, a **separator** in between, and electrolyte comprising aqueous potassium hydroxide. The metal elongated housing comprises a sheet of metal that is wrapped around a casing.
Preferred Condition: The number of cells in the plastic casing is 3-5. The battery has a dimension of 6 mm in thickness, 17 mm in width, and 67 mm in height. The volume of the anode and the cathode is 50-75% of the external volume of the metal housing.

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Material: The metal comprises nickel plated cold rolled steel and stainless steel.

FS CPI EPI
FA AB; GI
MC CPI: A12-E06; L03-E02
EPI: X16-A01
PLE UPA 20031112
[1.1] 018; R00326 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D82; H0000; P1150; P1161
[1.2] 018; R00964 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D83; H0000; P1150; P1343
[1.3] 018; B9999 B5221 B4740; ND01; Q9999 Q7341 Q7330; B9999 B4875 B4853 B4740
[2.1] 018; P0635-R F70 D01
[2.2] 018; P1490-R F61 D01
[2.3] 018; ND01; Q9999 Q7341 Q7330; B9999 B4875 B4853 B4740

L36 ANSWER 3 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2003-614233 [58] WPIX
TI **Prismatic** sealed **battery.**
DC X16
IN KIM, I H
PA (SMSU) SAMSUNG SDI CO LTD
CYC 1
PI KR 2003034429 A 20030509 (200358)* 1p H01M002-04
ADT KR 2003034429 A KR 2001-65364 20011023
PRAI KR 2001-65364 20011023
IC ICM H01M002-04
AB KR2003034429 A UPAB: 20030910
NOVELTY - A **prismatic** sealed **battery** is provided, to prevent the leakage of an electrolyte solution and the discharging of gas in case of deformation due to heat, thereby

improving the stability of a battery.
DETAILED DESCRIPTION - The **prismatic** sealed **battery**(10) comprises a can(11) where an electrode part comprising wound a positive electrode plate, a **separator** and a negative electrode plate; a cap plate(23) which is combined with the upper part of the can and has a step part(23d); a gasket(24) received at the step part of the cap plate; an electrode **terminal**(25) which is inserted through the gasket and the cap plate; and a **terminal** plate(21) which is inserted into the lower side of the cap plate by using an insulating plate(22) as a medium and **connects** the **electrode** tap(13) drawn from any one electrode plate and the electrode **terminal** electrically. Preferably the thickness of the step part(23d) set down from the surface is equal to that of the other part in the cap plate. The electrode **terminal**(25) is revetted by penetrating through the gasket(24), the cap plate(23), the insulating plate(22) and the **terminal** plate(21).
Dwg.1/10

FS EPI
FA AB; GI
MC EPI: X16-F01

L36 ANSWER 4 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2003-604613 [57] WPIX
TI **Prismatic** secondary **battery**.
DC X16
IN LEE, H Y; NA, S H
PA (SMSU) SAMSUNG SDI CO LTD
CYC 1
PI KR 2003033594 A 20030501 (200357)* 1p H01M002-10
ADT KR 2003033594 A KR 2001-65663 20011024
PRAI KR 2001-65663 20011024
IC ICM H01M002-10
AB KR2003033594 A UPAB: 20030906
NOVELTY - Provided is a **prismatic** secondary **battery**, which can turn off electric current by operating a bimetal mounted between an electrode tap and an electrode **terminal** when the battery is out of order.
DETAILED DESCRIPTION - The **prismatic** secondary **battery** contains: an **electrode** plate **assembly**(25) formed by winding a cathode plate, an anode plate, and a separator; a prismatic case(24) in which the **electrode** plate **assembly**(25) is inserted; a metallic cap plate(21) sealing the prismatic type case(24); an insulating gasket(22) inserted in a hole formed on the cap plate(21); the electrode **terminal**(23) inserted in a hollow formed on the gasket(22); the electrode tap(26) connected electrically to the cathode plate or the anode plate; the

bimetal(30) of which one end is in contact with the lower part of the electrode **terminal**(23) inserted in the case(24) and the other side is connected to the electrode tap(26). The bimetal(30) comprises two kinds of metals, wherein the upper metal(30a) has higher thermal expansion rate than the lower metal(30b).
Dwg.1/10
FS EPI
FA AB; GI
MC EPI: X16-F06

L36 ANSWER 5 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2003-575495 [54] WPIX
TI **Prismatic battery.**
DC X16
IN NAM, J I
PA (SMSU) SAMSUNG SDI CO LTD
CYC 1
PI KR 2003032561 A 20030426 (200354)* 1p H01M002-08
ADT KR 2003032561 A KR 2001-64383 20011018
PRAI KR 2001-64383 20011018
IC ICM H01M002-08
AB KR2003032561 A UPAB: 20030821
NOVELTY - Provided is a **prismatic battery** which comprises a cap assembly and a sealing part at a part of the cap assembly, to which cap plate and gasket are connected, and improves a seal of the battery.
DETAILED DESCRIPTION - The **prismatic battery** comprises a **electrode assembly**(12) formed by winding an anode plate, a cathode plate and a separator; a can(11) for housing the **electrode assembly**; **electrode** taps(13) which are drew from the anode plate and the cathode plate respectively; a cap plate(21) for sealing the can; a gasket(24) which is inserted into the through-hole formed at the cap plate; an electrode **terminal**(25) which is inserted into cavity at the gasket and electrically connected with any one selected from the electrode taps; and a sealing part formed between the cap plate and gasket by anaerobic adhesive.
Dwg.1/10
FS EPI
FA AB; GI
MC EPI: X16-F01A

L36 ANSWER 6 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2003-456208 [43] WPIX
CR 2001-529016 [58]; 2002-697209 [75]; 2003-147432 [14]
DNN N2003-362780 DNC C2003-121248
TI Metal-gas cell battery e.g. zinc-air cell battery for electric

vehicle, comprises metal-gas cell(s), positive battery **terminal** electrically **connected** to gas **cathodes** and negative battery **terminal** electrically **connected** to metal **anode.**

DC A85 L03 X16 X21
IN YANG, D; YANG, R
PA (YANG-I) YANG D; (YANG-I) YANG R
CYC 1
PI US 2003003338 A1 20030102 (200343)* 18p H01M012-06
ADT US 2003003338 A1 CIP of US 2001-681260 20010309, CIP of US 2001-682012 20010709, CIP of US 2001-683120 20011120, US 2002-231878 20020828
PRAI US 2002-231878 20020828; US 2001-681260 20010309; US 2001-682012 20010709; US 2001-683120 20011120
IC ICM H01M012-06
ICS H01M002-02; H01M002-18; H01M010-26
AB US2003003338 A UPAB: 20030707
NOVELTY - A metal-gas cell battery comprises metal-gas cell(s) (12), a positive battery **terminal** electrically **connected** to gas **cathodes** (I,II) and a negative battery **terminal** electrically **connected** to a metal **anode.** The cell comprises parallel retaining structures (I,II), gas cathodes (I,II), a soft pocket (24), a soft pocket closing mechanism, a metal anode, protective meshes (I,II) and **separator** sheets (I,II).

DETAILED DESCRIPTION - A metal-gas cell battery comprises metal-gas cell(s), a positive battery **terminal** electrically **connected** to gas **cathodes** (I,II) and a negative battery **terminal** electrically **connected** to a metal **anode.** The metal-gas cell comprises parallel retaining structures (I,II), gas cathodes (I,II), a soft pocket disposed between the cathodes, a soft pocket closing mechanism, a metal anode (28) disposed within a soft pocket chamber (26), protective meshes (I,II) and **separator** sheets (I,II).

The structure (II) is proximate to the structure (I) and is movable with respect to the structure (I) between retaining structure positions (I,II). The structure (II) is spaced apart from the structure (I). The cathodes (I,II) are disposed within rigid planar retaining structures (I,II), respectively. The cathode (I) (18) is permeable to gases but impermeable to liquids and the cathode (II) is permeable to air but impermeable to liquids.

The cathodes allow the passage of gases into the cell and the **cathode** (II) is electrically **connected** to the **cathode** (I). The soft pocket has a flexible and planar walls (I,II) having respective top edges. The periphery of the wall (I) is connected to the periphery of wall (II) except along the respective top edges. The periphery of the walls (I,II) are attached to the

structures (I,II), respectively. The structures, cathodes and the walls form a liquid retaining soft pocket chamber having a lower portion, an upper portion and a top opening (44) between the top edges of the walls. The top opening is open when the structures are in position (II) and tightly closed when the structures are in position (I). The closing mechanism secures the structures in the position (I). The meshes (I,II) are disposed between the cathodes (I,II) and walls (I,II), respectively. The sheets (I,II) is permanently installed between the cathodes (I,II) and meshes (I,II), respectively.

INDEPENDENT CLAIMS are also included for the following:

(1) zinc-air cell battery containing several internal zinc-air cells between outermost zinc-air cells (I,II), a positive battery **terminal** electrically **connected** to air **cathodes** (I,II) of cell (I) and a negative battery **terminal** electrically **connected** to zinc **anode** of cell (II). Each cell comprises structures (I,II), air cathodes (I,II), soft pocket, soft pocket closing mechanism, zinc anode wholly disposed within a soft pocket chamber, protective meshes (I,II), **separator** sheets (I,II) and a semi-permeable membrane. The semi-permeable membrane is in the upper portion of the pocket chamber to allow gases to flow out of the upper portion. The membrane is permeable to gases but impermeable to liquids. The anode comprises a planar anode base portion (58) having a lower edge (72) which is shorter in length than upper edge (74), and a tab portion (62). The tab portion in each internal zinc-air cell is electrically **connected** to air **cathodes** of adjoining zinc-air cell by a conductor component. The component has a portion in abutment with the tab portion; and

(2) metal-gas cell.

USE - As mechanically **rechargeable** metal-air cell **battery**, such as zinc-air cell battery (claimed), e.g. for electric vehicle.

ADVANTAGE - The metal-gas cell **battery** is conveniently **recharged** by mechanically replacing the metal anode. The battery eliminates expensive and labor-intensive operation of changing and washing the **separator** bags. The battery prevents leakage of electrolyte or electrolyte mist and is durable for several refueling operations.

DESCRIPTION OF DRAWING(S) - The figure shows a perspective view of a metal-gas cell.

Metal gas cell 12
Gas cathode (I) 18
Soft pocket 24
Soft pocket chamber 26
Metal anode 28
Top opening 44
Support structure 56

Base portion 58
Tab portion 62
Lower edge 72
Upper edge 74
Dwg.2/11

TECH US 2003003338 A1UPTX: 20030707
TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Electrolyte: The cell further contains an electrolyte disposed within the soft pocket chamber. The electrolyte is an aqueous solution containing potassium hydroxide, sodium hydroxide or sodium chloride, preferably potassium hydroxide.

TECHNOLOGY FOCUS - POLYMERS - Preferred Material: The semi-permeable membrane is made of polytetrafluoroethylene. The soft pocket is made of neoprene, ethylene propylene diene monomer, butyl rubber, ethylene propylene copolymer or chlorosulfonated polyethylene. The soft pocket comprises a molded integral piece M-shaped in cross section.

TECHNOLOGY FOCUS - ELECTRICAL POWER AND ENERGY - Preferred Battery: The closing mechanism comprises bolt(s) and nut(s). The metal anode is wholly disposed within the chamber and comprises a base portion and a tab portion. The base portion is disposed without an enclosure **separator** bag and is trapezoidal in shape. The gas cathodes (I,II) are air cathodes (I,II), respectively. The metal anode is retained firmly within the pocket by elastic elements when the structures (I,II) are in the position (I). The elastic elements are disposed within the structure (II).
Preferred Material: The sheets (I,II) are permanently installed at 0.3-0.5 mm, respectively from the cathodes (I,II) in the cell. The sheets are protected by alkaline-resist protective meshes, which are 40-300 mesh, preferably 80-100 mesh. The battery comprises several cells which are electrically connected in series. The peripheries of the walls (I,II) are attached to the structures (I,II), respectively without using glue.

TECHNOLOGY FOCUS - METALLURGY - Preferred Material: The metal anode comprises an electrically conductive support structure (56) to which a metal anode material, preferably zinc, is attached.

FS CPI EPI
FA AB; GI
MC CPI: A12-E06; L03-E01; L03-E01B6
EPI: X16-D01; X16-F01; X16-F02; X21-A01F; X21-B01A
PLE UPA 20030707
[1.1] 018; R00975 G0022 D01 D12 D10 D51 D53 D59 D69 D82 F- 7A; H0000; P0511
[1.2] 018; ND01; K9416; Q9999 Q7341 Q7330
[1.3] 018; Q9999 Q8060; B9999 B4886 B4853 B4740

[2.1] 018; R01079 G0828 G0817 D01 D12 D10 D51 D54 D56 D58 D69 D84 Cl 7A; H0124-R; H0000; P0328; P0340
[2.2] 018; R00326 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D82; R00964 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D83; H0124-R; H0022 H0011; P1150; P1285; P1296
[2.3] 018; R00326 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D82; R00964 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D83; G0817-R D01 D51 D54; H0124-R; H0033 H0011; P1309 H0124; P1150
[2.4] 018; R00966 G0055 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D84; R00429 G0828 G0817 D01 D02 D12 D10 D51 D54 D56 D58 D85; H0022 H0011; H0124-R; P1150; P0328; P0431
[2.5] 018; ND01; K9416; Q9999 Q7341 Q7330
[2.6] 018; B9999 B3827 B3747
[3.1] 018; R00326 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D82; H0000; H0124-R; M9999 M2288 M2277; P1150; P1161; P1230
[3.2] 018; ND01; K9416; Q9999 Q7341 Q7330; B9999 B3827 B3747
[3.3] 018; S- 6A Cl 7A; H0157

L36 ANSWER 7 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2003-137206 [13] WPIX
DNC C2003-034869
TI **Prismatic** secondary **battery.**
DC L03 X16
IN NAM, J I
PA (SMSU) SAMSUNG SDI CO LTD
CYC 1
PI KR 2002070585 A 20020910 (200313)* 1p H01M002-02
ADT KR 2002070585 A KR 2001-10734 20010302
PRAI KR 2001-10734 20010302
IC ICM H01M002-02
AB KR2002070585 A UPAB: 20030224
NOVELTY - Provided is a **prismatic** secondary **battery** which can overcome a problem associated with poor sealing between lead **terminal** and cap plate, and reduce working time and cost.

DETAILED DESCRIPTION - The **prismatic** secondary **battery** comprises a can for accepting **electrode assembly**; a cap plate(60) which is welded to opening of the can and seals up the can; a lead **terminal**(80) which is connected to either **electrode** of the **electrode assembly** and consists of head part(80A), connecting part(80B), and bonding part(80C), and a coating part(82) formed by coating a lower surface of the cap plate and each of exterior surface of the head, connecting and bonding parts of the lead **terminal** with fluorocarbon.

Dwg.1/10

FS CPI EPI
FA AB; GI
MC CPI: L03-E01D3
EPI: X16-B01; X16-F01A

L36 ANSWER 8 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2002-626533 [67] WPIX
DNN N2002-495472
TI **Electrode assembly** for **prismatic battery** for portable electronic device, has positive and negative **conducting edges** that are in contact with active surface areas of positive and negative electrodes acting as current collectors.
DC S04 W01 X16 X21 X22
IN LING, P; NG, A S
PA (CHON-I) CHONGAN W; (LING-I) LING P; (NGAS-I) NG A S
CYC 2
PI US 2002081489 A1 20020627 (200267)* 20p H01M002-26
CN 1366360 A 20020828 (200282) H01M004-02
ADT US 2002081489 A1 Provisional US 2000-257352P 20001222, US 2002-45304 20020115; CN 1366360 A CN 2001-143751 20011221
PRAI US 2000-257352P 20001222; US 2002-45304 20020115
IC ICM H01M002-26; H01M004-02
ICS H01M002-24
AB US2002081489 A UPAB: 20021018
NOVELTY - The positive and negative **conducting edges** in contact with the active surface areas of positive and negative electrodes, form current collectors along the edges of the positive and negative electrodes, respectively. A process separator is positioned between the surface areas. The conductors conduct electric current to an external device from the battery.

USE - For **prismatic battery** used in portable electronic device such as watch, mobile phone. Also used in a wide variety of industrial and commercial applications to power vehicles, electric equipment, etc.

ADVANTAGE - Improves balanced current transmission between the **electrodes** and **communicating terminals** by maximizing contact area. Eliminates tab and wire welding for **communication** between **electrodes** and **terminals**, thereby reducing cost and manufacturing time. Minimizes resistance to current flow to and from the electrodes through the electrode contacts.

DESCRIPTION OF DRAWING(S) - The figure shows a graphical representation of the higher voltage drop due to welded tab design limiting current flow from electrodes.

Dwg.2a/16
FS EPI
FA AB; GI

MC EPI: S04-B01A; W01-C01D3C; W01-C01E5B; X16-B01; X16-E02; X21-B01A; X22-F01

L36 ANSWER 9 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2001-607952 [70] WPIX
DNN N2001-453896
TI Compact lithium-ion battery has cells arranged longitudinally in housing with ends closed by anode and cathode cell **terminals** , enabling closed housing to hold ion transporting electrolyte.
DC X16 X22
IN BENSON, M R; SANDBERG, M G
PA (DELP-N) DELPHI TECHNOLOGIES INC
CYC 2
PI DE 10105877 A1 20010823 (200170)* 7p H01M010-38
US 2002045096 A1 20020418 (200228) H01M006-32
US 6406815 B1 20020618 (200244) H01M004-58
ADT DE 10105877 A1 DE 2001-10105877 20010209; US 2002045096 A1 Div ex US 2000-502706 20000211, US 2001-1329 20011023; US 6406815 B1 US 2000-502706 20000211
PRAI US 2000-502706 20000211; US 2001-1329 20011023
IC ICM H01M004-58; H01M006-32; H01M010-38
ICS H01M002-00; H01M002-02; H01M002-12; H01M002-36
AB DE 10105877 A UPAB: 20011129
NOVELTY - The battery has a housing with separate anode and cathode **terminals**, bipolar lithium-ion cells with a polymer **separator** between them with thin film plastic substrate cell **electrodes** suitably electrically **connected** to the **anode** and **cathode** cell **terminals**. The cells are arranged longitudinally in the housing, whose ends are closed by the cell **terminals**, enabling the housing to hold an electrolyte that transports ions between the anode and cathode.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following: a method of manufacturing a lithium-ion battery.
USE - **Rechargeable** lithium-ion **battery**, especially a compact battery suitable for the automobile industry.
ADVANTAGE - The battery can be manufactured by automated methods with a polymer membrane or **separator** permeable to lithium ions between bipolar electrodes and cell **electrodes** suitably electrically **connected** to the **anode** and **cathode terminals** at opposite ends of the battery housing.
DESCRIPTION OF DRAWING(S) - The drawing shows a schematic perspective exploded representation of a lithium-ion battery battery 10
plastic end covers 14,16
cell casing 12
Dwg.1/16
FS EPI

FA AB; GI
MC EPI: X16-B01F1; X16-F01; X16-F03A; X16-F03B; X22-F01

L36 ANSWER 10 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2001-511325 [56] WPIX
TI **Rechargeable battery** and method for manufacturing the same.
DC X16
IN KIM, Y S; NOH, H J; OH, J W
PA (SMSU) SAMSUNG SDI CO LTD
CYC 1
PI KR 2001017195 A 20010305 (200156)* 1p H01M002-02
ADT KR 2001017195 A KR 1999-32580 19990809
PRAI KR 1999-32580 19990809
IC ICM H01M002-02
AB KR2001017195 A UPAB: 20011001
NOVELTY - A **rechargeable battery** and a method for manufacturing the same are provided to reduce the manufacturing steps and to improve the sealing effect of a case by bonding periphery portions of upper and lower plates of the case by using a sealing member.
DETAILED DESCRIPTION - A **rechargeable battery** (100) comprises a **battery** cell(30) in which an anode(31), a **separator**(32) and a **cathode**(33) are sequentially **stacked**. The battery cell(30) has an **anode terminal**(37) **connected** to the **anode**(31) and a **cathode terminal**(38) **connected** to the **cathode**(33). A case(20) has upper and lower plates(21,22). The upper and lower plates(21,22) are bonded to each other so as to form a space portion(23) for accommodating the battery cell(30). The anode **terminal**(37) and the cathode **terminal**(38) are withdrawn through a periphery portion of the upper and lower plates(21,22). A sealing member(40) is provided to seal the periphery portions of the upper and lower plates(21,22).
Dwg.1/10
FS EPI
FA AB; GI
MC EPI: X16-F01

L36 ANSWER 11 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2001-511324 [56] WPIX
TI **Rechargeable** lithium **battery**.
DC X16
IN KIM, Y S
PA (SMSU) SAMSUNG SDI CO LTD
CYC 1
PI KR 2001017194 A 20010305 (200156)* 1p H01M002-02

ADT KR 2001017194 A KR 1999-32579 19990809
PRAI KR 1999-32579 19990809
IC ICM H01M002-02
AB KR2001017194 A UPAB: 20011001
NOVELTY - A **rechargeable** lithium **battery** is provided to reduce the manufacturing cost by manufacturing a battery having a large capacitance using a case formed with a pouch.
DETAILED DESCRIPTION - A **rechargeable** lithium **battery** comprises an **electrode assembly** (20) consisting of an anode plate, a cathode plate and a separator which are stacked on another. A case(30) is provided to seal the **electrode assembly**(20). The **electrode assembly**(20) is connected to a **terminal** which is exposed to an outer portion of the case(30). The case(30) includes a front wall(31) having the first pouch(31a) and a rear wall(33) having the second pouch(33a). The rear wall(33) is coupled to the front wall(31). The first and second pouches(31a,33a) have predetermined depths so as to accommodate the **electrode assembly**(20) therein. The bottom area of the first pouch(31a) is different from the bottom area of the second pouch(33a).
Dwg.1/10
FS EPI
FA AB; GI
MC EPI: X16-F01

L36 ANSWER 12 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2001-130986 [14] WPIX
DNN N2001-097106
TI Stack type lithium ion **rechargeable battery** has positive and negative electrodes with ends protruded and drawn from edge of **separator** for respective **connection** to positive and negative **electrode terminals.**
DC X16
PA (NIST) JAPAN STORAGE BATTERY CO LTD
CYC 1
PI JP 2000348772 A 20001215 (200114)* 7p H01M010-40
ADT JP 2000348772 A JP 1999-157849 19990604
PRAI JP 1999-157849 19990604
IC ICM H01M010-40
AB JP2000348772 A UPAB: 20010312
NOVELTY - A **separator** (7) covers the ends of a positive electrode (5) and a negative electrode (6). The edge portion of one end of positive electrode is protruded and drawn from the edge of the **separator,** for **connection** to a positive **electrode terminal.** The edge portion of one end of the negative electrode is protruded and drawn from the **separator** for **connection** to a negative

electrode terminal (4).

USE - None given.

ADVANTAGE - Prevents electric current from concentrating in collector portion of positive and negative electrode. Attains reduction of non-uniform temperature distribution, hence increasing safety and reliability of battery life span.

DESCRIPTION OF DRAWING(S) - The figure shows the partially enlarged perspective diagram of the structure of collector portion in the side of negative electrode of electricity generating component in lithium ion **rechargeable battery.**

Negative electrode **terminal** 4

Positive electrode 5

Negative electrode 6

Separator 7

Dwg.1/6

FS EPI

FA AB; GI

MC EPI: X16-B01F

L36 ANSWER 13 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2000-566783 [53] WPIX

DNN N2000-418680

TI Solid electrolyte **rechargeable battery** with positive and negative electrodes of different sizes and layered between solid electrolyte.

DC X16

IN GOTO, S

PA (SONY) SONY CORP

CYC 31

PI EP 1032068 A2 20000830 (200053)* EN 17p H01M010-40
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI
CA 2298803 A1 20000823 (200053) EN H01M006-18
JP 2000243430 A 20000908 (200058) 9p H01M010-04
CN 1264928 A 20000830 (200059) H01M006-18
KR 2000062585 A 20001025 (200124) H01M004-36
US 6376128 B1 20020423 (200232) H01M006-18
TW 494593 A 20020711 (200328) H01M010-28

ADT EP 1032068 A2 EP 2000-103263 20000217; CA 2298803 A1 CA 2000-2298803 20000216; JP 2000243430 A JP 1999-45325 19990223; CN 1264928 A CN 2000-102411 20000223; KR 2000062585 A KR 2000-8394 20000222; US 6376128 B1 US 2000-504815 20000216; TW 494593 A TW 2000-102522 20000215

PRAI JP 1999-45325 19990223

IC ICM H01M004-36; H01M006-18; H01M010-04; H01M010-28; H01M010-40
ICS H01M010-38

AB EP 1032068 A UPAB: 20001023
NOVELTY - The solid electrolyte battery consists of layered

electrode assemblies (5), sheathed and hermetically sealed by an external film of insulating material. Several positive and negative electrodes are layered together with the electrolyte layers between them. A positive electrode **terminal** (7) and a negative electrode **terminal** (8) are connected to the positive and negative electrodes. The **terminals** (7,8) are clinched in a sealed opening in the periphery of the external film.

USE - To prevent internal shorting between positive and negative electrodes

ADVANTAGE - Enables high energy density

DESCRIPTION OF DRAWING(S) - Perspective view showing layered **electrode assembly**

Layered assembly 5

Positive **terminal** 7

Negative **terminal** 8

Dwg.3/10

FS EPI

FA AB; GI

MC EPI: X16-B01F; X16-E08

L36 ANSWER 14 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2000-452090 [39] WPIX

CR 2000-412491 [35]; 2000-431695 [37]; 2000-431699 [37]; 2000-431700 [37]; 2000-431701 [37]; 2000-431702 [37]; 2000-431703 [37]; 2000-431704 [37]; 2000-452084 [39]; 2000-452085 [39]; 2000-452089 [39]; 2000-465392 [40]; 2000-475423 [41]; 2002-546064 [58]; 2003-016612 [01]

DNN N2000-336618 DNC C2000-137736

TI Metal-air battery cells for cellular, mobile telephones, comprises housing having outer wall with one aperture, diffuser, carbon dioxide scrubbing agent, air electrode, two **terminals**, anode mixture, **separator**.

DC E36 J01 L03 X16

IN GIVON, M; ROSENBERG, T; SHRIM, Y

PA (EFLE-N) EFL ELECTRIC FUEL LTD

CYC 90

PI WO 2000036687 A1 20000622 (200039)* EN 99p H01M012-06

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ TZ UG ZW

W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

AU 2000016777 A 20000703 (200046) H01M012-06

ADT WO 2000036687 A1 WO 1999-IL683 19991215; AU 2000016777 A AU 2000-16777 19991215

FDT AU 2000016777 A Based on WO 2000036687

PRAI US 1999-135061P 19990520; US 1998-112292P 19981215
IC ICM H01M012-06
ICS H01M004-62; H01M008-06
AB WO 200036687 A UPAB: 20030227
NOVELTY - A metal-air battery cell (101) comprises housing having outer wall with one aperture, diffuser (278) located next to aperture, carbon dioxide scrubbing agent contacted with diffuser, air electrode in contact with air passing through diffuser, **terminal** (1) **connected** to air **electrode**, **anode** mixture, **terminal** (2) **connected** to the mixture and a **separator** provided between air electrode and mixture.

DETAILED DESCRIPTION - A metal-air battery cell comprises a housing having an outer wall with at least one aperture through which air can pass, a diffuser located adjacent to the aperture, a carbon dioxide scrubbing agent contacted with the diffuser, an air electrode in contact with the air passing through the diffuser, **terminal** (1) electrically **connected** to the air **electrode**, an anode mixture including electrolyte and metal particles, **terminal** (2) electrically connected to the mixture and a **separator** provided between the air electrode and the mixture. The diffuser is positioned such that air passing through the aperture into the cell passes through the diffuser. The **separator** is in physical contact with the air electrode and the mixture, permits the travel of ions and blocks the metal particles from contacting the air electrode.

INDEPENDENT CLAIMS are also included for:

(i) diffuser for cells which comprises a carbon dioxide scrubbing agent in contact with an air diffusing element;

(ii) the manufacturing method of the diffuser.

USE - For cellular, mobile telephones, computers.

ADVANTAGE - The metal-air **battery** cells are **prismatic** and reduce wastage of space, provide high packaging density and allows a compact battery pack. The cell housing has raised portions defining channels for conducting fluid. A liquid impermeable covering positioned over the housing prevents intrusion of liquid into the space occupied by the cells. Openings are located on the raised portions, remote from the liquid in channels. Size of the hole enables efficient oxygen supply to the cathode and minimizes moisture loss. The openings in the battery permit oxygen transport into the battery at a rate of 0.04-0.05 cm3 per second. Openings on the battery case have a combined area of at least twice the combined area of the openings within the battery case. A support provided in the battery case has two portions linked by an integral hinge provided with recesses for receiving a respective one of the battery cells. The recess allow the battery cells to expand, preventing distortion of the support. The recesses define trays into which the respective battery cells fit. The trays

are enclosed with an absorbent material which holds any filled substance emerging from the battery cells. A gas permeable membrane is attached to the tray, enclosing the battery cells to block an intrusion of liquid into the battery cells. The integral hinge provides at least 180 deg. angular moment between the longitudinal axis of the two supports. Material of the support is sufficiently flexible and accommodates the expansion without permitting the battery cells to become unsupported. Punched out holes in the support have substantially the same width and length as the battery cells to press-fitted the battery cells into the holes. A current limiter connectable between the **terminals** and the cell prevents over-charging of the battery cell. The diffusing element is formed of a material that allows gas exchange through the element and between the respective battery cells and outside of the case. The package has an enclosure capable of encasing the electrochemical device and is formed of a material that permits diffusion of ambient gas into and out of the enclosure. The enclosure has a moisture permeability of less than 3 mg water/day/300 cm2.

DESCRIPTION OF DRAWING(S) - The figure shows an exploded view of the battery case supporting the metal-air battery cell.

Metal-air battery cell 101

Gas-exchange wall 104C

Absorbent material 270

Diffuser 272

Trays 271

Hydrophobic plastic layer 273

Holes 276

Battery case pack 277

Dwg.34b/50

TECH WO 200036687 A1UPTX: 20000818

TECHNOLOGY FOCUS - ELECTRICAL POWER AND ENERGY - Preferred Device: The diffuser is located inside or outside the cell. The scrubbing agent is finely divides and impregnates into interstices of the diffuser and is coated on the diffuser. Volume of the diffuser is increased to accommodate the scrubber particles.

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Composition: The metal particles include zinc particles. The scrubbing agent includes at least calcium hydroxide, magnesium hydroxide, zinc oxide or soda-lime.

Preferred Properties :The scrubbing agent is hydrophobic. The diffuser is **porous**. Preferred Method: The scrubbing agent is included in the diffusing element by:

(i) agitating the diffusing element in presence of a scrubbing agent optionally with an adhesive;

(ii) by placing the scrubbing agent and diffusing element in a fluidized bed; or

(iii) forming a solution or suspension of scrubbing agent in a

solvent and evaporating the solvent, the scrubbing agent is consequently precipitated into interstices of the diffusing element.

KW [1] 255-0-0-0 CL REM; 89837-0-0-0 CL; 99998-0-0-0 CL; 866-0-0-0 CL; 154189-0-0-0 CL

FS CPI EPI

FA AB; GI; DCN

MC CPI: E11-Q02; E31-N05C; E34-B02; E34-D01; E35-C; J01-E02A; L03-E01B2
EPI: X16-A01B; X16-D01; X16-E09; X16-F01

DRN 1066-U; 1502-U; 1509-U; 1520-U

CMC UPB 20030227
M3 *01* C106 C108 C530 C730 C800 C801 C802 C803 C805 C807 M411 M750 M904 M905 M910 N163 Q431 Q454
DCN: R01066-K; R01066-X
M3 *02* A220 A940 C101 C108 C550 C730 C801 C802 C804 C805 C807 M411 M781 M904 M905 M910 N163 Q431 Q454 Q508 R043
DCN: R01502-K; R01502-R
M3 *03* A212 A940 C101 C108 C550 C730 C801 C802 C804 C805 C807 M411 M781 M904 M905 M910 N163 Q431 Q454 Q508 R043
DCN: R01509-K; R01509-R
M3 *04* A430 A940 C108 C550 C730 C801 C802 C803 C804 C805 C807 M411 M781 M904 M905 M910 N163 Q431 Q454 Q508 R043
DCN: R01520-K; R01520-R
M3 *05* M781 M905 N163 Q431 Q454 Q508 R043
DCN: RA0E00-K; RA0E00-R

L36 ANSWER 15 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2000-284825 [25] WPIX

DNN N2000-214466 DNC C2000-085997

TI **Rechargeable** alkali metal **electrochemical cell**, for use in the vicinity of Magnetic Resonance Imaging system, comprises negative and positive electrodes of active material intercalating with e.g. alkali metal.

DC A85 L03 S01 S03 S05 X16

IN LEISING, R A; SPILLMAN, D M; TAKEUCHI, E S

PA (GREW) GREATBATCH LTD WILSON

CYC 26

PI EP 989624 A1 20000329 (200025)* EN 17p H01M010-40
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI
JP 2000100475 A 20000407 (200028) 11p H01M010-40

ADT EP 989624 A1 EP 1999-307455 19990921; JP 2000100475 A JP 1999-267119 19990921

PRAI US 1998-211406 19981215; US 1998-101175P 19980921

IC ICM H01M010-40
ICS H01M002-02; H01M004-02; H01M004-58; H01M004-64

AB EP 989624 A UPAB: 20000524
NOVELTY - A secondary electrochemical cell comprises: a casing; negative and positive electrodes of an active material intercalating

with an alkali metal; the length and width of the negative electrode extend beyond the length and width of the positive electrode to provide the positive electrode bounded by the negative electrode; and an electrolyte solution. The cell is constructed of low magnetic susceptibility materials.

DETAILED DESCRIPTION - A secondary electrochemical cell comprising:

(a) a casing;

(b) a negative electrode of an active material intercalating with a material selected from groups IA, IIA, or IIIB of the periodic table of elements, including the alkali metals;

(c) a positive electrode of an active material intercalating with the material selected from groups IA, IIA, or IIIB, including the alkali metals; a periphery of the positive electrode is completely bounded by a periphery of the negative electrode to prevent the material selected from groups IA, IIA, or IIIB, including the alkali metals, from plating as the cell is repeatedly cycled between a charged and discharged condition; and

(d) an electrolyte solution activating the negative and positive electrodes.

An INDEPENDENT CLAIM is also included for an electrochemical cell comprising a casing of a material having a magnetic susceptibility of at least 182 x 106, or greater, a negative electrode (46) including graphite contacted to a copper current collector, a positive electrode (32) comprising a lithium cobalt oxide contacted to an aluminum current collector (30), and an electrolyte solution.

USE - **Rechargeable** alkali metal **electrochemical cell**, particularly a lithium-ion secondary cell, for use in the vicinity of a Magnetic Resonance Imaging (MRI) system, for use with medical instruments, implantable medical devices, surgical tools.

ADVANTAGE - The cells exhibit a low fade rate.

DESCRIPTION OF DRAWING(S) - The drawing shows the anode/cathode **electrode assembly** connected to the header assembly serving as a winding mandrel.

Terminal pin 20

Lid 22

Cathode current collector 30

End of cathode sheet 32

Uncoated portion 42

Anode electrode 46

Opposed sheets of anode active material 48

Dwg.6/8

TECH EP 989624 A1 UPTX: 20000524

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred materials - The negative and positive electrode active materials are mixed with a fluoro-resin binder.

The electrolyte includes an alkali metal salt dissolved in at least one non aqueous solvent selected from dimethyl carbonate, diethyl carbonate, dipropyl carbonate, ethylmethyl carbonate, methylpropyl carbonate, ethylpropyl carbonate, ethylene carbonate, propylene carbonate, butylene carbonate, vinylene carbonate and gamma-butyrolactone, and their mixtures.

FS CPI EPI
FA AB; GI
MC CPI: A12-E09; L03-E01B5; L03-E03
EPI: S01-E02A2; S03-E07A; S05-A01C; S05-B03; S05-D02B1; X16-B01F1; X16-E01C; X16-F01
PLE UPA 20000524
[1.1] 018; P0500 F- 7A
[1.2] 018; ND01; Q9999 Q7396 Q7330; Q9999 Q6791; K9416; Q9999 Q7341 Q7330; Q9999 Q7794-R; Q9999 Q8026 Q7987; Q9999 Q8048 Q7987

L36 ANSWER 16 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2000-271638 [23] WPIX
DNN N2000-203378 DNC C2000-083037
TI Flexible charge storage device for use as super capacitors has sheet electrodes and a **porous separator** contained in a sealed package.
DC A85 L03 V01 X16
IN SACCHETTA, C S; VASSALLO, A M
PA (ENER-N) ENERGY STORAGE SYSTEMS PTY LTD
CYC 23
PI WO 2000016352 A1 20000323 (200023)* EN 21p H01G004-26
RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
W: AU CA JP US
AU 9959624 A 20000403 (200034)
EP 1133781 A1 20010919 (200155) EN H01G004-26
R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
US 6552895 B1 20030422 (200330) H01G009-08
ADT WO 2000016352 A1 WO 1999-AU780 19990916; AU 9959624 A AU 1999-59624 19990916; EP 1133781 A1 EP 1999-969174 19990916, WO 1999-AU780 19990916; US 6552895 B1 WO 1999-AU780 19990916, US 2001-786908 20010612
FDT AU 9959624 A Based on WO 2000016352; EP 1133781 A1 Based on WO 2000016352; US 6552895 B1 Based on WO 2000016352
PRAI AU 1998-5965 19980916
IC ICM H01G004-26; H01G009-08
ICS H01G009-058
AB WO 200016352 A UPAB: 20000516
NOVELTY - A flexible charge storage device includes:
(a) first and second sheet electrodes each having **terminals** (5, 6);
(b) a **porous separator** disposed between the

electrodes; and

(c) a sealed package (3) to contain the electrodes, the **separator** and an electrolyte (12).

The **terminals** extend from the package to allow **connection** to the **electrodes.**

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a method of producing a flexible charge storage device. The method includes:

(a) providing sheet electrodes;

(b) disposing a **porous separator** between the electrodes; and

(c) sealing the electrodes and the **separator** in a package containing an electrolyte.

USE - For use as super capacitor in mobile communications, self-propelled toys and automotive applications.

ADVANTAGE - The arrangement of the flexible charge storage device not only extends the life of a **battery** but will quickly **recharge.** The compact and flexible nature of the capacitor and its package allows them to be placed in confined spaces and in many different configurations.

DESCRIPTION OF DRAWING(S) - The figure shows a charge storage device.

package 3

terminals 5, 6

electrolyte 12

Dwg.1/3

TECH WO 200016352 A1UPTX: 20000516

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Component: The sheet includes two opposed sides and at least one of the sides has a coating containing activated carbon. Each of the two electrodes includes aluminum sheet.

TECHNOLOGY FOCUS - POLYMERS - Preferred Component: The package includes a number of layers and the layer closest to the **terminals** includes polyethylene or an ionomer coating, preferably SURLYN coating. The **terminal** also includes a plastic sleeve where the packaged is engaged. Preferred Method: The package is bonded to the **terminals** by an adhesive resin, preferably an epoxy resin.

ABEX WO 200016352 A1UPTX: 20000516

EXAMPLE - In an EMBODIMENT of the device, the sheets and the intermediate separator are stacked or folded together. The device retains at least 90 wt.% (preferably at least 95 wt.%) electrolyte when maintained at 80 degrees C for 100 hr. It retains at least 99 wt.% electrolyte when maintained at 70 degrees C for 1000 hr.

FS CPI EPI

FA AB; GI

MC CPI: A04-G02E4; A10-E21B; A12-E04; A12-E07B; L03-B03; L03-D05A;

L03-H03
EPI: V01-B01A7; V01-B01B3; V01-B01B5; V01-B01D; V01-B01X; X16-L02
PLE UPA 20000516
[1.1] 018; R00326 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D82; H0000; P1150; P1161
[1.2] 018; R00326 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D82; R00460 G0306 G0271 G0260 G0022 D01 D12 D10 D26 D51 D53 D58 D60 D84 F36 F35; M9999 M2379-R; P0588; H0022 H0011; P1150; P0088; P0179
[1.3] 018; ND01; Q9999 Q7363 Q7330; Q9999 Q9234 Q9212; Q9999 Q9289 Q9212; Q9999 Q9201; B9999 B4035 B3930 B3838 B3747; Q9999 Q7523; K9416; N9999 N7170 N7023; N9999 N5721-R; K9676-R
[1.4] 018; Q9999 Q7114-R
[2.1] 018; P0464-R D01 D22 D42 F47
[2.2] 018; ND01; Q9999 Q7363 Q7330; Q9999 Q9234 Q9212; Q9999 Q9289 Q9212; Q9999 Q9201; B9999 B4035 B3930 B3838 B3747; Q9999 Q7523; K9416; N9999 N7170 N7023; N9999 N5721-R; K9676-R
[2.3] 018; Q9999 Q6644-R

L36 ANSWER 17 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2000-248092 [22] WPIX
CR 1998-011373 [02]; 2000-248091 [19]
DNN N2000-185722
TI **Rechargeable battery** with non-aqueous electrolyte and improved charge preservation characteristics has lithium based anode and carbon based cathode.
DC X16
IN NISHIO, K; NOHMA, T; YAMASAKI, M
PA (SAOL) SANYO ELECTRIC CO LTD
CYC 3
PI EP 987781 A2 20000322 (200022)* EN 21p H01M010-40
R: DE FR GB
ADT EP 987781 A2 Div ex EP 1997-103887 19970307, EP 1999-121405 19970307
FDT EP 987781 A2 Div ex EP 810680
PRAI JP 1996-156243 19960527
IC ICM H01M010-40
ICS H01M004-58
AB EP 987781 A UPAB: 20000508
NOVELTY - The battery uses a micro-**porous** film made of polypropylene as a **separator** (3) between an anode (1) and a cathode (2) that are wound in a spiral shape and then placed in a battery can (4). The non-aqueous electrolyte is then poured into the battery can which is then sealed and the **anode** and **cathode connected** to an outer **terminal** (6) and to the battery can (7) respectively. The battery electrodes are insulated from each other by an insulated packing (8). The anode

material uses lithium cobalt dioxide with carbon powder added as a conductive agent, and the cathode uses graphitized carbon.
USE - For power supply in portable devices
ADVANTAGE - Reduces risk of self discharge
DESCRIPTION OF DRAWING(S) - Section through battery
Anode 1
Cathode 2
Separator(4) Can 3
Positive **terminal** 6
Negative connection 7
Insulation 8
Dwg.1/6

FS EPI
FA AB; GI
MC EPI: X16-B01F; X16-B01F1; X16-E01C

L36 ANSWER 18 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2000-237311 [20] WPIX
DNN N2000-178012 DNC C2000-072143
TI **Separator** seal for cylindrical electrochemical cell comprises layer(s) of micro-**porous** or non-**porous** membrane or their combination, and layer(s) of a **porous** sheet material.
DC A18 A23 A85 L03 X16
IN BOOK, R J; DANIEL-IVAD, E; DANIEL-IVAD, J
PA (BATT-N) BATTERY TECHNOLOGIES INC
CYC 85
PI WO 2000007257 A1 20000210 (200020)* EN 22p H01M010-28
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZW
AU 9948927 A 20000221 (200029) H01M010-28
US 6099987 A 20000808 (200040) H01M002-18
EP 1114487 A1 20010711 (200140) EN H01M010-28
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI
KR 2001074765 A 20010809 (200211) H01M002-18
ADT WO 2000007257 A1 WO 1999-CA669 19990723; AU 9948927 A AU 1999-48927 19990723; US 6099987 A US 1998-122316 19980724; EP 1114487 A1 EP 1999-932582 19990723, WO 1999-CA669 19990723; KR 2001074765 A KR 2001-701120 20010126
FDT AU 9948927 A Based on WO 2000007257; EP 1114487 A1 Based on WO 2000007257
PRAI US 1998-122316 19980724
IC ICM H01M002-18; H01M010-28

ICS H01M002-16; H01M010-04

AB WO 200007257 A UPAB: 20000426

NOVELTY - **Separator** seal for a cylindrical electrochemical cell include layer(s) of a microporous or a non-**porous** membrane, or their combination; and layer(s) of a **porous** sheet material. The seal overlaps at least a portion of the **separator**. It is located near the positive **terminal** of the cell, adjacent an end of the **separator** to separate the **anode** and **cathode** while ionically **connecting** them.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a cylindrical electrochemical cell having an anode; a cathode (14); a cylindrical **separator** (20) coaxial with the cell for electrically separating the anode and cathode; and a cup (37, 38) near the positive **terminal** of the cell, forming a seal for an end of the **separator**.

USE - For a cylindrical **electrochemical rechargeable cell**, e.g. manganese dioxide-zinc cell.

ADVANTAGE - The invented cup seal is provided at the bottom of the cell that overlies the **separator**. It is made of the same ion permeable material as the **separator**, providing more available surface area. Improved efficiency and performance is obtained at higher discharge rates even though the absorbent non-woven fibrous layers of the materials are compressed. The reduction or elimination of the hot-melt sealant makes it possible for a commercial high speed production of the cells because the electrolyte dispensed into the **cathode/separator** sub-**assembly** is absorbed more quickly, allowing faster machine speeds and/or less investment in inventory tables to provide sufficient delay time for electrolyte absorption.

DESCRIPTION OF DRAWING(S) - An enlarged cross-sectional view of the bottom portion of a cell.

Cathode 14

Cylindrical **separator** 20

First layers 20a

Second layers 20b

cup seal 37, 38

Dwg.3/7

TECH WO 200007257 A1UPTX: 20000426

TECHNOLOGY FOCUS - ELECTRICAL POWER AND ENERGY - Preferred Cell: The electrochemical cell contains cups positioned on opposite sides or on the same side of the **separator**. The seal is affixed to the **separator** with a minimum amount of hot-melt or other sealant applied to the junction of the seal and the **separator**. The first layers (20a) of the seal provide a barrier layer to penetration from deposits generated within the cell. The second layers (20b) provide a layer for absorbing

electrolyte within the cell. The first and second layers are laminated or coated together.

TECHNOLOGY FOCUS - POLYMERS - Preferred Materials: The first layers comprise viscose, grafted polyethylene or cellophane materials. The second layers comprise nonwoven materials including polyamide, polyvinyl alcohol, rayon, or cellulosic fibers.

FS CPI EPI
FA AB; GI
MC CPI: A12-E06C; L03-E01A
EPI: X16-A01A; X16-F02
PLE UPA 20000426
[1.1] 018; R24076 R24077 R01852 G3634 G3623 D01 D03 D11 D10 D23 D22 D31 D42 D50 D76 D86 F24 F29 F26 F34 H0293 P0599; R24075 R24077 R01852 G3634 G3623 D01 D03 D11 D10 D23 D22 D31 D42 D50 D76 D86 F24 F29 F26 F34 H0293 P0599
[1.2] 018; R00326 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D82; H0088 H0011; P1150
[1.3] 018; ND01; Q9999 Q7341 Q7330; Q9999 Q7498 Q7330; Q9999 Q9018; B9999 B5221 B4740; B9999 B5141 B4740; Q9999 Q8060; K9676-R; Q9999 Q7818-R; N9999 N7192 N7023
[1.4] 018; Q9999 Q6780; B9999 B4864 B4853 B4740
[2.1] 018; P0635-R F70 D01; S9999 S1183 S1161 S1070
[2.2] 018; R24076 R24077 R01852 G3634 G3623 D01 D03 D11 D10 D23 D22 D31 D42 D50 D76 D86 F24 F29 F26 F34 H0293 P0599; P1707 P1694 D01; S9999 S1183 S1161 S1070
[2.3] 018; G3634-R D01 D03 D11 D10 D23 D22 D31 D42 D76 F24 F34 H0293 P0599 G3623; S9999 S1070-R
[2.4] 018; ND01; Q9999 Q7341 Q7330; Q9999 Q7498 Q7330; Q9999 Q9018; B9999 B5221 B4740; B9999 B5141 B4740; Q9999 Q8060; K9676-R; Q9999 Q7818-R; N9999 N7192 N7023
[2.5] 018; B9999 B3383-R B3372

L36 ANSWER 19 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2000-095613 [08] WPIX
CR 1997-272353 [24]; 1999-394190 [32]; 1999-467822 [36]
DNN N2000-073747 DNC C2000-027765
TI Fibrous electrochemical cell manufacturing process for electrical energy or chemical products.
DC A85 L03 X16
IN ESHRAGHI, R R
PA (ESHR-I) ESHRAGHI R R
CYC 1
PI US 5989300 A 19991123 (200008)* 14p H01M008-02
ADT US 5989300 A Div ex US 1997-869448 19970605, US 1999-274530 19990323
PRAI US 1997-869448 19970605; US 1999-274530 19990323
IC ICM H01M008-02
ICS H01M002-18

AB US 5989300 A UPAB: 20000215
NOVELTY - The process comprises a fiber bundle (29) placed inside a casing of an electrochemical cell module (28) with a mandrel (25) extending through the casing. A tube sheet (26) is sealed by 'O' rings (27) with positive (31) and negative (32) **electrodes connected** to plates (33,34) to form positive and negative **terminals**. The casing has inlet (36) and outlet (37) to the lumen side of the cells and inlet (25) and outlet (39) to the shell side of the cells.

DETAILED DESCRIPTION - The electrodes are formed from electrically conductive fibers in contact or coated with an electrocatalyst. The membrane **separator** has a bore side, the shell side and the lumen. The electrodes form the positive electrode and the negative electrodes. There is a feed inlet and a feed outlet at the electrodes for passing a gaseous or liquid feed. The feed is passed from the shell side or through the lumen of the bore side of the membrane **separator**. The fibrous electrochemical cells are placed in a casing and the shell or bore side of the electrochemical fibers are sealed and isolated. The **electrodes** are **connected** to plates to form the positive and negative **terminals** and the feed components are reacted on the electrodes to generate electrical energy.

USE - For the construction of **electrochemical cells** such as **batteries** (**rechargeable** and non-**rechargeable**) fuel **cells** and other **electrochemical** reaction **cells**.

ADVANTAGE - The fibrous geometry of the cells provides an extremely high surface area to volume ratio when multitude of small fibers are packed into a given volume. Since the fibrous electrode is composed of one or more fibers having an outer diameter from about 10 mu m to 10 mm, the surface area is very high. The high surface area available to electrodes translates into a higher number of active sites participating in the electrochemical reaction, hence giving rise to higher energy density batteries. A small amount of the electrocatalyst can be impregnated, coated or extruded on a fibrous substrate to form an electrode. This may be done for e.g. by plasma deposition of one or few atomic layer of the electrocatalyst on the fibrous electrode, resulting in lower material weight and cost.

DESCRIPTION OF DRAWING(S) - The figure shows the side view of the electrochemical cell module.
Mandrel 25
Tube sheet 26
'O' rings 27
Electrochemical cell module 28
Fiber bundle 29
Positive electrode 31
Negative electrode 32

Plates 33,34
Casing inlets 25,36
Casing outlets 37,39
Dwg.9/12
FS CPI EPI
FA AB; GI
MC CPI: A12-E06B; A12-E09; L03-E02
EPI: X16-A; X16-B01; X16-C; X16-F02
PLE UPA 20000215
[1.1] 018; P1490-R F61 D01; S9999 S1070-R; S9999 S1207 S1070
[1.2] 018; ND01; K9416; K9574 K9483; K9518 K9483; K9701 K9676; Q9999 Q7523; Q9999 Q8060; Q9999 Q7341 Q7330; Q9999 Q7410 Q7330; Q9999 Q7396 Q7330
[1.3] 018; B9999 B5221 B4740; N9999 N7170 N7023; B9999 B5243-R B4740
[2.1] 018; P0000
[2.2] 018; ND01; K9416; K9574 K9483; K9518 K9483; K9701 K9676; Q9999 Q7523; Q9999 Q8060; Q9999 Q7341 Q7330; Q9999 Q7410 Q7330; Q9999 Q7396 Q7330
[2.3] 018; Q9999 Q7772; Q9999 Q7114-R; K9529 K9483; K9530 K9483; K9494 K9483

L36 ANSWER 20 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1998-523460 [45] WPIX
DNN N1998-409020 DNC C1998-157297
TI Rechargeable lithium ion cell esp. for battery modules in electric vehicles - comprises two non-conductive half-shells which cover electrode plates and their lugs, with skewing preventer extending over entire surface of cover.
DC L03 X16 X21
IN BARTKE, D; BECHTOLD, D; KRAEMER, P; KRETZSCHMAR, R; VOLLBERT, J
PA (VART) VARTA BATTERIE AG; (NBTN-N) NBT GMBH
CYC 25
PI EP 871232 A1 19981014 (199845)* DE 9p H01M002-02
R: AL AT BE CH DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI
DE 19714846 A1 19981015 (199847) H01M002-02
US 6007944 A 19991228 (200007) H01M004-64
EP 871232 B1 20001206 (200064) DE H01M002-02
R: AT CH DE DK FR GB IT LI NL SE
DE 59800368 G 20010111 (200104) H01M002-02
ADT EP 871232 A1 EP 1998-102315 19980211; DE 19714846 A1 DE 1997-19714846 19970410; US 6007944 A US 1998-48607 19980326; EP 871232 B1 EP 1998-102315 19980211; DE 59800368 G DE 1998-500368 19980211, EP 1998-102315 19980211
FDT DE 59800368 G Based on EP 871232
PRAI DE 1997-19714846 19970410
IC ICM H01M002-02; H01M004-64

ICS H01M002-04; H01M002-12; H01M002-14; H01M002-24; H01M004-04; H01M010-02; H01M010-04; H01M010-40

AB EP 871232 A UPAB: 19981111

A rechargeable lithium ion cell (1) of prismatic shape has (a) a metallic housing which is electrically insulated internally by two non-conductive half shells, which cover the electrode plates and their lugs (7), and externally by an insulating coating; (b) a bursting membrane (4) normally located above the electrolyte level; and (c) a skewing preventer which extends over the entire surface of the cover (2) and which also serves for centring and mounting of the **electrode** plate **assembly**. Also claimed is production of the above cell by (i) welding the positive and negative electrode plate lugs (7), respectively, to aluminium and copper rivets (9) which are then rivetted to the positive and negative **terminals** (3) respectively; (ii) enclosing the **electrode assembly** with the half shells and inserting in the cell housing; (iii) welding the cover (2) onto the cell housing; (iv) filling the cell (1) with electrolyte through the filling socket (5) and cycling to achieve the functional state of the cell; and (v) sealing the filling socket (5) electrolyte-tight.

USE - As an on-board power battery for vehicles (claimed), especially electric road vehicles.

ADVANTAGE - The cell has high mechanical stability and safety, avoids short-circuiting, water penetration and heating (with consequent irreversible energy loss) on high current loading, prevents electrolyte leakage and is inexpensively produced from a reduced number of parts.

Dwg.1/8

FS CPI EPI

FA AB; GI

MC CPI: L03-E01D

EPI: X16-B01F1; X16-F01; X16-F03B; X21-A01F; X21-B01A

L36 ANSWER 21 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 1997-434363 [40] WPIX

DNN N1997-361358 DNC C1997-139268

TI A leak-proof **rechargeable** lead-acid **battery** for small appliances e,g. radios - has a one-way valve for escape of gas from the interior of the battery and a self-sealing rubber plug for replenishment of the electrolyte.

DC L03 X16

IN KOTHARI, K

PA (KOTH-I) KOTHARI K

CYC 1

PI US 5660942 A 19970826 (199740)* 8p H01M002-12

ADT US 5660942 A US 1996-654527 19960529

PRAI US 1996-654527 19960529

IC ICM H01M002-12

AB US 5660942 A UPAB: 19971006
A battery cell (10) comprises: (a) a cylindrical hollow plastic housing (12): (b) a negative electrical **terminal** (36) connected to the negative electrode plate and secured to the closed end of the housing, and exposed; (c) an **electrode assembly** (44) within the housing and having a positive electrode plate (50), a negative electrode plate (46) and an insulating absorbent separator plate (48); (d) acidic electrolyte solution within the housing; (e) a plastic intermediate plate (58) having a gas passage aperture (68) and a liquid passage channel (76); (f) a plastic cover plate (78), outside and spaced apart from the intermediate plate, and having a gas passage aperture (73) and a liquid passage aperture 1 (80); (g) a positive electrical **terminal** (84,86) connected to the positive electrode plate, and secured to the cover plate, and exposed; (h) a rubber plug (94) between the intermediate plate member and the cover plate member to block the gas passage aperture and the liquid passage aperture; and (i) a one-way valve (96,98) between the intermediate plate and the cover plate to block the gas passage aperture of the intermediate plate member, whilst allowing gas to escape from the interior of the housing;

Also claimed is a leak-proof **rechargeable battery** constructed as above.

USE - Useful for **rechargeable** lead-acid **batteries** for small consumer appliances e.g. torches, portable radios, tape players.

ADVANTAGE - The battery is inexpensive to manufacture compared to a Ni-Cd battery. It is interchangeable with standard battery cells. Electrolytes cannot leak from the interior of the cell. In the event of overcharging, gas can escape to prevent explosion. To replenish the electrolyte, water can be added through a resealable rubber plug.

Dwg.1/7

FS CPI EPI
FA AB; GI
MC CPI: L03-E01B1; L03-E01D
EPI: X16-B01B; X16-F03B

L36 ANSWER 22 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1996-354658 [35] WPIX
DNN N1996-299020
TI In situ x-ray **electrochemical cell** appts. for study of **rechargeable battery** - has electrically conductive open mesh grid forming current collector between positive electrode and electrolyte **separator** of battery.
DC S03 X16
IN AMATUCCI, G G; TARASCON, J
PA (BELL-N) BELL COMMUNICATIONS RES INC

CYC 24
PI WO 9622523 A1 19960725 (199635)* EN 36p G01N023-20
RW: AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE
W: BR CA JP MX SG
TW 290647 A 19961111 (199711) G01R031-36
US 5635138 A 19970603 (199728) 15p G01N023-20
EP 804725 A1 19971105 (199749) EN G01N023-20
R: AT BE CH DE DK FR GB IE IT LI LU MC NL PT SE
JP 10502740 W 19980310 (199820) 29p G01N023-20
MX 9705308 A1 19971001 (199901) G01N023-20
ADT WO 9622523 A1 WO 1996-US54 19960116; TW 290647 A TW 1996-100396 19960115; US 5635138 A US 1995-373830 19950117; EP 804725 A1 EP 1996-901625 19960116, WO 1996-US54 19960116; JP 10502740 W JP 1996-522284 19960116, WO 1996-US54 19960116; MX 9705308 A1 MX 1997-5308 19970714
FDT EP 804725 A1 Based on WO 9622523; JP 10502740 W Based on WO 9622523
PRAI US 1995-373830 19950117
REP 8.Jnl.Ref; US 5350923
IC ICM G01N023-20; G01R031-36
ICS G01N033-20; H01M010-40; H01M010-48
AB WO 9622523 A UPAB: 19960905
The appts. monitors electrode changes in a **rechargeable battery** and includes an in situ x-ray electrochemical cell (30) having top and bottom cell members (32,34) with beryllium window elements (36) for transmission of diffractometer x-radiation. A **rechargeable battery** (43) within the cell enclosure has an electrolyte/**separator** element interposed between positive and negative electrodes.

A current collector element formed of an electrically conductive open-mesh grid is disposed between the positive electrode and **separator.** This enables ion-conducting contact of the electrode and the **separator** while maintaining electrical continuity between the electrode and an external x-ray **terminal** (54).

USE/ADVANTAGE - For monitoring structural change of electrode in **rechargeable battery.** Simple system which ensures that beryllium window does not experience corrosion problems of related art. Permits determination of factors limiting number of lithium ions in intercalation compound, e.g. structural changes in host material induced by intercalation or deintercalation of lithium during charge/discharge cycling.
Dwg.2/15
ABEQ US 5635138 A UPAB: 19970709
Apparatus for in situ x-ray study of electrochemical cells which comprises an electrochemical cell comprising a positive electrode, a negative electrode, and an interposed electrolyte/**separator** element in contact with said electrodes, means for mounting said electrochemical cell in the path of incident x-radiation, said

mounting means comprising means enclosing said electrochemical cell which includes at least one window element for transmission of said x-radiation to incidence upon said cell, said enclosing means comprising first and second opposed electrically-conductive members electrically isolated from one another and respectively providing positive and negative electrical **terminals** characterized in that said mounting means further comprises

a) means for electrically **connecting** said positive **electrode** to said first conductive member and said negative electrode to said second conductive member; and

b) means for maintaining said cell spaced from and out of contact with said window element.

Dwg.2/15

FS EPI
FA AB; GI
MC EPI: S03-E06C; S03-E14C; S03-F07; X16-H

L36 ANSWER 23 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1996-222236 [22] WPIX
DNN N1996-186485 DNC C1996-070559
TI Electrochemical cell - consists of cell can, positive plate electrode, negative electrode, flexible insulating seal, and planar positive current collector.
DC L03 X16
IN BARLOW, G; PULLEY, C J; SPECHT, S J
PA (BARL-I) BARLOW G; (PULL-I) PULLEY C J; (SPEC-I) SPECHT S J; (WESE) WESTINGHOUSE ELECTRIC CORP
CYC 1
PI WO 9612319 A1 19960425 (199622)* EN 13p H01M010-39
US 5604051 A 19970218 (199713) 4p H01M002-10
ADT WO 9612319 A1 WO 1995-US10809 19950825; US 5604051 A US 1994-324047 19941017
PRAI US 1994-324047 19941017
REP US 3844842; US 4061841; US 4086396
IC ICM H01M002-10; H01M010-39
ICS H01M002-06
AB WO 9612319 A UPAB: 19960604
A Li alloy/molten salt/metal sulphide electrochemical cell (10) consists of: (a) a cell can (11); (b) at least one positive plate **electrode** (12), electrically **connected** to a positive **terminal** (16), and insulated from the can by a high m.pt. salt; (c) at least one negative **electrode** (13) **connected** to a **terminal** (17) on the can, the negative and positive electrodes being electrically insulated from each other by a ceramic **separator** (15); (d) a flexible insulating seal (19) on the exterior of the positive **terminal**, and insulated therefrom by a ceramic bushing (20) against which it is compressively sealed; and (e) a generally planar

positive current collector (18) **connected** to the positive **electrode.** The negative electrode is an integral part of the cell.

USE - Provides a high-temp. **rechargeable electrochemical cell** using a simplified construction and lower-cost materials.

ADVANTAGE - The cell design avoids the need for perforated baskets for restraining the active materials. A simple mechanical seal is used for the positive **terminal** instead of expensive packed powder such as BN.

Dwg.1/1

ABEQ US 5604051 A UPAB: 19970326

A lithium-alloy/molten salt/metal sulphide electrochemical cell comprises the combination of:

a. a cell can formed from low carbon steel;

b. at least one plate provided within the cell can, the at least one plate being positive, the positive plate including at least one positive electrode, the positive electrode being insulated from the can by a high melting point salt, the positive **electrode** being electrically **connected** to a positive **terminal;**

c. at least one negative **electrode connected** separately to a **terminal** on the can, the negative electrode and the positive electrode being electrically insulated from each other by a ceramic **separator;**

d. the positive **terminal** having a flexible insulating seal electrically insulated on its exterior surface sandwiching a ceramic bushing and compressively sealed together, the seal being formed from flexible graphite having an exterior surface, the flexible graphite having a layer of electrically insulative material provided on the exterior surface;

e. a generally planar positive current collector operably **connecting** to the positive **electrode;**

f. the negative electrode being an integral part of the cell; and

g. an intercell connector formed from low carbon steel, the intercell connector electrically joining adjacent cells.

Dwg.1/1

FS CPI EPI

FA AB; GI

MC CPI: L03-E01B5; L03-E01D; L03-E03

EPI: X16-B01C1; X16-B01F1; X16-E01C; X16-E02; X16-F01

L36 ANSWER 24 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 1996-180151 [18] WPIX

DNN N1996-151358

TI Sealed **rechargeable battery** with control logic stabiliser. - uses hermetically sealed cells with liq. impermeable

separators and regulator cell incorporating metal hydride or oxide and hydrogen electrodes..

DC U24 X16
IN TSENTER, B
PA (ACME-N) ACME ELECTRIC CORP
CYC 21
PI WO 9608847 A1 19960321 (199618)* EN 34p H01M010-52
RW: AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE
W: CA JP KR
US 5569554 A 19961029 (199649) 12p H01M010-36
MX 190889 B 19990107 (200051) H01M010-050
ADT WO 9608847 A1 WO 1995-US11677 19950912; US 5569554 A US 1994-306633 19940915; MX 190889 B MX 1995-3937 19950914
PRAI US 1994-306633 19940915
REP DE 2746652; DE 3814112; GB 1226220; US 2578027; US 3080440; US 3546020; US 3901729; US 5290640
IC ICM H01M010-050; H01M010-36; H01M010-52
ICS H01M010-34; H01M010-50
AB WO 9608847 A UPAB: 19960503
A wall (11) forms a hermetic seal (12) for cells (13). Fluid impermeable barriers (14) separate the cells. A regulator or auxiliary cell (22) for the working cells in the battery can consume hydrogen and can consume oxygen without generating hydrogen.

The regulator cell includes one metal hydride or metal oxide electrode (24) and a hydrogen electrode (25) via conductor (26) to a 'hydrogen **terminal**'.

ADVANTAGES - In small batteries, e.g. less than 150 W/hr per litre use of internal pressure sensor is avoided, and allows external monitoring based on external cell temp; determines efficiency of charge, avoids sealing individual cells and permits use of smaller batteries.

Dwg.1/4
ABEQ US 5569554 A UPAB: 19961205
A sealed **rechargeable** storage **battery** comprising:

a sealed housing;

at least one rechargeable working cell within said sealed housing;

positive and negative **terminals** connected through the sealed housing to respective positive and negative ends of the working cell;

at least one regulator cell within said sealed housing; a common gas space inside said housing in communication with said rechargeable working cell and said regulator cell;

said regulator cell having a first electrode and a hydrogen electrode;

means to make external **connection** to said hydrogen **electrode**;

means to make external **connection** to said first **electrode**; and

a voltage stabilizer connected to said regulator cell capable of maintaining the voltage applied to said regulator cell within a preselected range.

Dwg.1/4

FS EPI
FA AB; GI
MC EPI: U24-E02B; X16-G

L36 ANSWER 25 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1993-303772 [38] WPIX
DNN N1994-085927 DNC C1994-050828
TI High capacity **rechargeable electrochemical cell** - has manganese di oxide cathode with discharge and charge limited to the theoretical one electron capacity by zinc anode which has discharge capacity of specified theoretical value.
DC L03 X16
IN BOOK, R J; FINDLAY, R D; ORAN, E; TOMANTSCHGER, K
PA (BATT-N) BATTERY TECHNOLOGIES INC
CYC 35
PI WO 9318557 A1 19930916 (199338)* 34p H01M010-36
RW: AT BE CH DE DK ES FR GB GR IT LU MC NL OA SE
W: AU BB BG BR CA CS FI HU JP KP KR LK MG MN MW NO PL RO RU SD
AU 9213337 A 19931005 (199405) H01M010-36
ADT WO 9318557 A1 WO 1992-CA101 19920309; AU 9213337 A AU 1992-13337 19920309
FDT AU 9213337 A Based on WO 9318557
PRAI WO 1992-CA101 19920309
REP 1.Jnl.Ref; US 3530496; US 4957827; WO 9117581
IC ICM H01M010-36
ICS H01M004-50; H01M010-24; H01M010-34
AB WO 9318557 A UPAB: 19940524
A high capacity **rechargeable electrochemical cell** comprises cathode (16), a MnO2 anode (14), a **separator** (18) between the **electrodes**, **connecting terminals** (24,26) and an aq. electrolyte. The MnO2 electrode has the theoretical one-electron discharge capacity between MnO2 and Mn2O3, the active component of the cathode is Zn, Fe, Pb, Cd, or metal hydrides, the cathode is rechargeable with a theoretical discharge capacity of 60-120% of theoretical MnO2 value, and the electrolyte comprises alkali metal hydroxide, H2SO4, H3BO3 or H3PO4, or ZnCl, NH4Cl, NaCl or KCl.

Pref. the negative electrode is Zn and the electrolyte 4-12 N KOH, the MnO2 electrode includes up to 15% graphite or carbon black, inorganic binder, graphite fibres or a hydrophobic organic binder such as PTFE, PE, or PP. The MnO2 electrode also comprises 0.1-5% of a H recombination catalyst such as Ag, Pt, or their cpd., and an

O-evolution catalyst, such as Ni, its oxide, perovskite or spinel, Co, Fe, Mn etc., dispersed within, or on the outer surface of, the electrode.

USE/ADVANTAGE - A **rechargeable electrochemical cell** (claimed) is provided which is useful for high-capacity cells in bobbin, spiral, button or flat plate configurations. The discharge capacity of the negative is 60-120% of the theoretical one-electron value for MnO2 and aq. electrolyte is used.

Dwg.1/5

13

Dwg.1/5

FS CPI EPI

FA AB; GI

MC CPI: L03-E03

EPI: X16-B01A; X16-E01C1

L36 ANSWER 26 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 1993-095607 [12] WPIX

CR 1993-031671 [04]; 1999-174098 [15]; 2001-372553 [39]

DNN N1993-073070

TI Battery cell for electric vehicle, partic. having wet type secondary cell - includes battery housing with projections on outer surface, and alternating zinc and nickel electrodes for adjacent cells, separated by passageway contg. cooling medium.

DC Q14 Q17 X16 X21 X22

IN HONDA, S; MITA, Y; MOTODATE, S; NAKAZAWA, Y; OGAWA, M; SUGIOKA, K; TAMAKI, K

PA (HOND) HONDA GIKEN KOGYO KK; (HOND) HONDA MOTOR CO LTD

CYC 6

PI	EP 533317	A2	19930324 (199312)*	EN	76p	H01M002-10
	R: DE FR GB IT					
	JP 05069870	A	19930323 (199316)			B62J009-00
	JP 05129014	A	19930525 (199325)		13p	H01M002-16
	EP 533317	A3	19930811 (199507)			H01M002-10
	US 5583418	A	19961210 (199704)		65p	H02J007-04
	EP 533317	B1	19990428 (199921)	EN		H01M002-10
	R: DE FR GB IT					
	DE 69229028	E	19990602 (199928)			H01M002-10

ADT EP 533317 A2 EP 1992-305908 19920626; JP 05069870 A JP 1991-262524 19910917; JP 05129014 A JP 1992-116784 19920410; EP 533317 A3 EP 1992-305908 19920626; US 5583418 A Div ex US 1992-891948 19920601, US 1994-214752 19940318; EP 533317 B1 EP 1992-305908 19920626; DE 69229028 E DE 1992-629028 19920626, EP 1992-305908 19920626

FDT DE 69229028 E Based on EP 533317

PRAI JP 1991-262524 19910917; JP 1991-233788 19910822; JP 1991-155955 19910531

REP No-SR.Pub; US 3745048; US 3928080

IC ICM B62J009-00; H01M002-10; H01M002-16; H02J007-04
ICS B60K001-04; B62K019-40; H01M002-24; H01M010-46; H01M010-50; H02J007-00

AB EP 533317 A UPAB: 20010716
The electric vehicle includes a wet type secondary battery in which a battery housing (42) is provided with negative zinc (105) and positive nickel (106) electrode plates, which are alternately positioned in the cell. Each nickel electrode has two or more layers of liquid holding paper (107), impregnated with electrolyte, wound around it, and a **separator** (101) is provided on the inner side of the outermost layer.

Connector **terminals** are operatively **connected** to respective **electrode** plates. The plates are disposed in a horizontal plane when the battery housing is mounted on a step floor of an electric vehicle. A charging station is provided for charging the battery, and is adapted to take into account differing battery characteristics and charging conditions.

ADVANTAGE - Prevents deterioration of battery capacity and ensures long life.

Dwg.3/69

ABEQ US 5583418 A UPAB: 19970122
A charging station for charging electric vehicles, each of the electric vehicles having **rechargeable batteries** for providing vehicle power and storage means for storing and outputting vehicle information indicative of the respective electric vehicle, the charging station comprising:

vehicle information receiving means for receiving the vehicle information of an electric vehicle coupled to the charging station;

vehicle discriminating means, coupled to said vehicle information receiving means, for determiner vehicle type of the electric vehicle coupled to the charging station in accordance with the received vehicle information;

charging control means, coupled to said vehicle discriminating means, for selecting a charging method and current for charging the **rechargeable battery** of the electric vehicle coupled to the charging station in accordance with the determined vehicle type; and

current regulating means, coupled to said charging control means, for generating and outputting a charging current for charging the **rechargeable battery** of the electric vehicle coupled to the charging station in accordance with the selected charging method and current.

26,31/69

FS EPI GMPI
FA AB; GI
MC EPI: X16-B01; X16-F01; X21-B01; X22-F01

L36 ANSWER 27 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 1992-374742 [46] WPIX
DNN N1992-285650
TI Zinc **rechargeable** or secondary **battery** - has bipolar plate construction with horizontally disposed battery components.
DC X16
IN CHARKEY, A
PA (ENER-N) ENERGY RES CORP
CYC 6
PI EP 512417 A1 19921111 (199246)* EN 6p H01M010-28
R: DE FR GB IT
JP 05101843 A 19930423 (199321) H01M010-18
US 5264305 A 19931123 (199348) 5p H01M010-30
EP 512417 B1 19970326 (199717) EN 8p H01M010-28
R: DE FR GB IT
DE 69218490 E 19970430 (199723) H01M010-28
ADT EP 512417 A1 EP 1992-107399 19920430; JP 05101843 A JP 1992-31435 19920122; US 5264305 A US 1991-695437 19910503; EP 512417 B1 EP 1992-107399 19920430; DE 69218490 E DE 1992-618490 19920430, EP 1992-107399 19920430
FDT DE 69218490 E Based on EP 512417
PRAI US 1991-695437 19910503
REP EP 190078; FR 1120255; FR 2118218; FR 2276704; FR 735714; US 2740821; US 4125680; US 4542082
IC ICM H01M010-18; H01M010-28; H01M010-30
ICS H01M002-24; H01M012-08
AB EP 512417 A UPAB: 19931006
The battery structure includes a number of battery cells each including a zinc negative electrode and an opposing positive electrode. A number of conductive bipolar plates each have two opposing surfaces and are electrically conductive through the thickness of the plate over the extent of the surfaces.

The battery cells and the conductive bipolar plates are arranged such that between each successive pair of battery cells is a bipolar plate arranged to provide electrical conductivity. The cells and plates are arranged horizontally in a vertical stack.

ADVANTAGE - Cycle life of battery is increased and shape change of zinc negative electrode is reduced.
1/1
ABEQ US 5264305 A UPAB: 19940120
The zinc secondary battery comprises a series of battery cells, the cells constituting all the battery cells in the battery and each battery cell comprising a zinc negative electrode and an opposite positive electrode. A number of conductive bipolar plates each have two opposing surfaces and are electrically conductive bipolar plates are arranged such that between each successive pair of battery cells is a bipolar plate arranged to provide electrical conductivity between. The battery cells and conductive bipolar plates are further

arranged horizontally in a vertical stack.
USE - Rechareable or secondary batteries using zinc negative electrodes.
Dwg.1/1

ABEQ EP 512417 B UPAB: 19970424
A battery (1) comprising a plurality of battery cells (3,4) the plurality of battery cells (3,4) constituting all the battery cells (3,4) in the battery (1) and each battery cell (3,4) comprising a zinc negative electrode (7) and an opposing positive electrode (6); a number of conductive bipolar plates (5), each of the bipolar plates having opposing first and second surfaces (5A,5B) and being electrically conductive through the thickness of the plates (5) over the extent of the first and second surfaces (5A,5B), the battery cells (3,4) and the conductive bipolar plate (5) being arranged such that between each successive pair of battery cells (3,4) is a bipolar plate (5) arranged to provide electrical conductivity therebetween; the battery cells (3,4) and the conductive bipolar plates (5) being further arranged horizontally in a vertical **stack** such that the positive **electrode** (6B) of the battery cells (3,4) is above the zinc negative electrode (7B) of the battery cell (3,4) a first conductive plate (17) arranged above and in electrical contact with the upper electrode (6B) of the top battery cells (3) in the stack, a second conductive plate (17) arranged below and in contact with the lower electrode of the bottom battery cell (4) in the stack; first and second battery **terminals** (13,14) comprising first and second conductive accumulator plates (16) electrically in contact with the first and second conductive plates (17), respectively characterised by first and second compression plate (11,12) disposed adjacent the first and second conductive accumulator plates (16) respectively, to compress the stack of battery cells (3,4) and the bipolar plates (5) together; the first and second battery **terminals** (13,14) including first and second posts (15), respectively, which pass through apertures in the first and second compression plate (11,12) and contact the first and second conductive accumulator plates (16) respectively; an electrically non-conductive **separator** (8) between the positive and zinc negative electrodes (6B,7B) of each of the battery cells (3,4); for each of the electrodes (6B,7B) a conductive current collector (6A,7A) abutting a surface of the electrode (6B,7B), a **separator** seal (9) situated at each end of each of the positive and zinc negative electrodes (6B,7B); and a gasket (21) situated at each end of the cell (3,4) abutting the **separator** seals (9) at that end of the cell (3,4).
Dwg.1/1

FS EPI
FA AB; GI
MC EPI: X16-B01A

L36 ANSWER 28 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1990-192921 [25] WPIX
CR 1991-058266 [08]
DNN N1991-018614 DNC C1990-083463
TI Electrochemical cell having wound **electrode assembly** - in which outer wrap of assembly has bare **conductive substrate** portion in contact with cell container wall.
DC L03 X16
IN CATOTTI, A J; FRYE, D B; PENSABENE, S F; PUGLISI, V J
PA (GATE) GATES ENERGY PROD INC; (EVEY) EVEREADY BATTERY CO INC
CYC 19
PI US 4929519 A 19900529 (199025)* 10p
EP 409616 A 19910123 (199104) 10p
R: AT BE CH DE ES FR GB GR IT LI LU NL SE
CA 2021558 A 19910121 (199116)
AU 9059088 A 19910418 (199123)
JP 03116654 A 19910517 (199126)
BR 9003509 A 19910827 (199139)
JP 03503820 W 19910822 (199140)
CA 2037898 C 19940524 (199426) H01M004-20
EP 436004 B1 19950913 (199541) EN 15p H01M010-34
R: AT BE CH DE DK ES FR GB IT LI LU NL SE
CA 2021558 C 19950905 (199542) H01M004-64
EP 409616 B1 19950920 (199542) EN 13p H01M010-34
R: AT BE CH DE DK ES FR GB GR IT LI LU NL SE
DE 69022503 E 19951026 (199548) H01M010-34
ES 2076321 T3 19951101 (199550) H01M010-34
JP 2695684 B2 19980114 (199807) 8p H01M002-22
ADT US 4929519 A US 1989-383376 19890720; EP 409616 A EP 1990-307899 19900719; JP 03116654 A JP 1990-191839 19900719; JP 03503820 W JP 1990-511043 19900713; CA 2037898 C CA 1990-2037898 19900713; EP 436004 B1 EP 1990-911515 19900713, WO 1990-US3947 19900713; CA 2021558 C CA 1990-2021558 19900719; EP 409616 B1 EP 1990-307899 19900719; DE 69022503 E DE 1990-622503 19900719, EP 1990-307899 19900719; ES 2076321 T3 EP 1990-307899 19900719; JP 2695684 B2 JP 1990-191839 19900719
FDT EP 436004 B1 Based on WO 9101573; DE 69022503 E Based on EP 409616; ES 2076321 T3 Based on EP 409616; JP 2695684 B2 Previous Publ. JP 03116654
PRAI US 1989-383376 19890720; US 1990-529084 19900525
REP NoSR.Pub; EP 223322; FR 2251106; GB 1197468; US 4802275; WO 8603889; 1.Jnl.Ref; JP 56102065; US 4460666
IC H01M002-26; H01M004-64; H01M006-10; H01M010-04
ICM H01M002-22; H01M004-20; H01M004-64; H01M010-34
ICS H01M002-26; H01M004-24; H01M004-70; H01M004-80; H01M006-10; H01M010-04
AB US 4929519 A UPAB: 19951004

Sealed cell has a container contg. a wound **electrode assembly** with at least one **electrode** formed of a **conductive substrate** with electrode active materialm on one or both sides, the electrode forming an outer wrap for the **electrode assembly**. One side of the substrate forming the outer wrap is free of electrode active mmaterial, this side directly contacting the container, the other side of this portion of the substrate carries electrode active amaterial. The part of the container contacted is pref. the sidewall.

ADVANTAGE - Design provides easy assembly, reduces internal resistance and increases cell capacity and performance. @(10pp Dwg.No.1/4)@

1/4@

ABEQ EP 436004 B UPAB: 19951019

A sealed **rechargeable electrochemical cell** (10) having a nickel positive electrode (30), a pasted negative counter electrode (40) comprising an electrically **conductive substrate** (15) and an electrochemically active material (42) secured through adhesion to at least one face of the substrate, a separator (50) interposed between the positive and negative electrodes, and an electrolyte, characterised by: the nickel positive electrode being formed of a porous **conductive substrate** (34) defining passageways laterally across the positive **electrode** through which the electrolyte **communicates**, and an electrochemically active nickel based material adhered to the substrate and interconnected through the passageways to opposite sides of the positive electrode; and the electrically **conductive substrate** of the pasted negative electrode having microholes therethrough, of a cross dimension less than about 200 percent of the distance from the surface of the substrate to the adjacent surface of the nickel positive electrode, and the electrically **conductive substrate** of the pasted negative electrode having microholes therethrough of a cross dimension less than about 200 percent of the distance from the surface of the substrate to the adjacent surface of the nickel positive electrode, whereby, in charging of the cell, the normal tendency of the nickel electrode to swell is retarded. Dwg.1/6

ABEQ EP 409616 B UPAB: 19951026

A sealed electrochemical cell having a spirally-wound **electrode assembly** positioned within a container, the **electrode assembly** including a first **electrode** comprised of an electrically **conductive substrate** (34) and an electrochemically active material (32) secured to both faces of the substrate and a second electrode of opposite polarity to the first electrode, the first electrode defining an outer wrap for the **electrode assembly**

; at least a portion of the substrate (34) on one side thereof in the outer wrap (36) being free of electrochemically active material (32) and directly contacting a portion of the container (12), the electrochemically active material being secured to at least a portion of the substrate in the outer wrap on the other side thereof directly opposite the one side making contact with the container; and the end of the first electrode extending substantially beyond the end of the second electrode in the outer wrap.
Dwg.1/3

FS CPI EPI
FA AB; GI
MC CPI: L03-E02
EPI: X16-A01A; X16-E03

L36 ANSWER 29 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1989-332166 [45] WPIX
DNN N1989-252906 DNC C1989-147250
TI Dendrite growth prevention - in spirally wound rechargeable alkaline metal cell, by coating casing with inert coating e.g.. PTFE.
DC A85 L03 X16
IN CHANG, O K; HALL, J C; PHILLIPS, J; SYLVESTER, L
PA (ALTU-N) ALTUS CORP
CYC 12
PI US 4863815 A 19890905 (198945)* 5p
DE 3917821 A 19891207 (198950)
WO 8912327 A 19891214 (199001) EN
RW: AT BE CH DE FR GB IT LU NL SE
W: JP
ADT US 4863815 A US 1988-202264 19880606; DE 3917821 A DE 1989-3917821 19890601; WO 8912327 A WO 1989-2440 19890605
PRAI US 1988-202264 19880606
REP US 4375501; US 4664989
IC H01M002-02; H01M004-40; H01M006-10; H01M010-04
AB US 4863815 A UPAB: 19930923
A **rechargeable electrochemical cell** comprising a casing (1) housing a stack of spirally wound elements (2) which include an alkaline metal anode, a cathode or cathode collector and **separator** is improved to increase its usable life by preventing lithium dendrites from forming on any cell casing external to the elements (2) by maintaining the casing at substantially the same potential as the anode and by providing an insulative, inert liner (18) on the cell casing.

The anode is specifically provided with a tab for electrically **connecting** the **anode** with a pin atop the cell casing as a negative **terminal**. The pin is also coated to prevent formation of alkaline metal dendrites. The pin and tab are spot welded together, such that the spot weld is located substantially at the centre of the elements surrounded immediately

by the anode. The casing and pin are coated with ethylene-tetrafluoroethylene polymer, polyethylene, polypropylene or PTFE.

ADVANTAGE - Prevents dendrite growth on interior of cell to give more reliable battery life and properties.

2/2

FS CPI EPI
FA AB
MC CPI: A12-E06C; L03-E03
EPI: X16-B01X; X16-F01
PLC UPA 19930924
KS: 0210 0231 2718 2739 0241 3157 0949 0239 0248 0947

FG: *001* 014 034 04- 041 046 047 062 064 087 27& 477 60- 623 627
FG: *002* 014 04- 041 046 047 050 062 064 087 477 60- 623 627 688

L36 ANSWER 30 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1988-360715 [50] WPIX
DNN N1988-273235 DNC C1988-159606
TI **Rechargeable** storage **battery** - includes gas vent and circuit breaker which absorbs entrained electrolyte and concentric electrode plates.
DC L03 X16
IN KUNG, C C
PA (KUNG-I) KUNG C
CYC 1
PI US 4788112 A 19881129 (198850)* 6p
ADT US 4788112 A US 1987-86300 19870817
PRAI US 1987-86300 19870817
IC H01M002-12
AB US 4788112 A UPAB: 19930923
Battery includes a container, a gas venting and circuit breaker device and a concentric **electrode assembly** of negative and positive plates and separators.

The gas venting and circuit breaker device absorbs entrained electrolyte and disconnects the positive **terminal** of the cell when gas pressure becomes excessive. The concentric electrode plates avoid breaking or deformation since they are concentrically wrapped up in one-fold instead of conventional spiral winding.

ADVANTAGE - Design overcomes the defects of the lead acid cell of US 3862861.

2/5

FS CPI EPI
FA AB; GI
MC CPI: L03-E03
EPI: X16-B01B; X16-F03B

L36 ANSWER 31 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 1986-346690 [52] WPIX
DNN N1986-258726
TI **Rechargeable** secondary **battery** having common unitary electrodes - provides positive and negative electrodes in adjacent cells separated by hydraulically impermeable wall.
DC X16
IN LEVINE, C A; MCCULLOUGH, F P; SNELGROVE, R V
PA (DOWC) DOW CHEM CO
CYC 15
PI WO 8607495 A 19861218 (198652)* EN 30p
RW: BE CH DE FR GB IT NL SE
W: AU BR JP
AU 8661246 A 19870107 (198711)
EP 221183 A 19870513 (198719) EN
R: BE CH DE FR GB IT LI NL SE
JP 62500968 W 19870416 (198721)
BR 8606712 A 19870811 (198737)
ZA 8604157 A 19871204 (198812)
US 4830938 A 19890516 (198923)
CA 1267932 A 19900417 (199020)
EP 221183 B 19920401 (199214) 14p
R: BE CH DE FR GB IT LI NL SE
DE 3684661 G 19920507 (199220)
ADT WO 8607495 A WO 1986-US1210 19860602; EP 221183 A EP 1986-904498 19860602; JP 62500968 W JP 1986-503621 19860602; US 4830938 A US 1988-170678 19880317; EP 221183 B EP 1986-904498 19860602
PRAI US 1985-741320 19850604; US 1988-170678 19880317
REP DE 3231243; FR 1092426; FR 640781; GB 2150741; SSR880316; US 3167456; US 3844837; US 4005183; US 4027077; US 4338322; US 4339322
IC H01M002-22; H01M006-42; H01M010-40
AB WO 8607495 A UPAB: 19930922
The battery comprises a hermetically sealed housing (10) made of a waterproof, gas impermeable, insulating material and having integral internal cell walls or partitions (13a,13b). Each cell (14a,14b,14c) contains a pair of electrodes made from a carbonaceous material for which the physical, mechanical and electrical parameters are comprehensively specified together with manufacturing details. End cells each have **terminal** electrode (15a,15b) adjacent to the end walls with commonly shared electrodes (16a and 16b) extending over the **separators** (13a,13b) between adjacent cells by taking an inverted U form.

The commonly shared unitary electrodes (16a,16b) are of dimensions such that the portion of each electrode extending into the adjacent cell is sufficient to form an effective electrode of the opposite polarity. The active area of each electrode may be increased by folding or pleating. The **terminal** electrodes (15a,15b) have peripheral edges plated with a copper wire mesh embedded, continuous metal bead (20) insulated with resin.

ADVANTAGE - Has unitary electrode made of single material eliminates current collectors from commonly shared electrodes. 1/1

ABEQ DE 3684661 G UPAB: 19930922

The battery comprises a hermetically sealed housing (10) made of a waterproof, gas impermeable, insulating material and having integral internal cell walls or partitions (13a,13b). Each cell (14a,14b,14c) contains a pair of electrodes made from a carbonaceous material for which the physical, mechanical and electrical parameters are comprehensively specified together with manufacturing details. End cells each have **terminal** electrode (15a,15b) adjacent to the end walls with commonly shared electrodes (16a and 16b) extending over the **separators** (13a,13b) between adjacent cells by taking an inverted U form.

The commonly shared unitary electrodes (16a,16b) are of dimensions such that the portion of each electrode extending into the adjacent cell is sufficient to form an effective electrode of the opposite polarity. The active area of each electrode may be increased by folding or pleating. The **terminal** electrodes (15a,15b) have peripheral edges plated with a copper wire mesh embedded, continuous metal bead (20) insulated with resin.

ADVANTAGE - Has unitary electrode made of single material eliminates current collectors from commonly shared electrodes.

ABEQ EP 221183 B UPAB: 19930922

A secondary **rechargeable battery** comprising a substantially hermetically sealed housing, at least one hydraulically impermeable partition dividing the housing into at least a pair of compartments, each compartment forming a cell containing an electrolyte of an ionisable salt in a non-aqueous liquid and at least a pair of spaced electrodes electrically insulated from one another, the first and the last cells of said battery containing a **terminal** electrode having a current collector associated therewith, at least one commonly shared, unitary electrode extending from one cell into an adjacent cell and having an intermediate portion which is hydraulically sealed in the cell partition to prevent the transfer of electrolyte from one cell to an adjacent cell while permitting the flow of current through said commonly shared electrode between said cells, characterised in that said electrode is constructed of a carbonaceous material having a Young's modulus of from 6.9 to 380 GPa, and an aspect ratio of greater than 100:1.

ABEQ US 4830938 A UPAB: 19930922

The secondary battery consists of three or more cells in series, each intermediate cell containing a pair of shared carbonaceous electrodes, each electrode being a carbonaceous body of a length to be inserted into adjacent cell, forming the positive electrode in one cell and the negative electrode in the adjacent cell. Each **terminal** cell in the series having a second electrode of a

carbonaceous material providing a connection to complete the flow of stored energy out of and charge energy into the cell series.

Each cell has a formaninous **separator** between each pair of electrodes in the cell to maintain its electrodes in spaced apart relationship. Each cell is a container or compartment of a container and the common **electrode connects** each cell to the adjacent cell. Each cell is provided with an ionisable salt in a non-aqueous fluid.

ADVANTAGE - Reversible.

1/1

FS EPI
FA AB
MC EPI: X16-B01; X16-B01X; X16-E; X16-F01; X16-F03A; X16-F09

L36 ANSWER 32 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1981-E3515D [19] WPIX
CR 1980-11120C [06]
TI Hermetically sealed electrochemical storage cell mfr. - is without use of separate sealing gaskets and has **electrode** structure **assembled** outside battery casing.
DC S05 X16
IN SUGALSKI, R K
PA (GENE) GENERAL ELECTRIC CO
CYC 1
PI US 4262414 A 19810421 (198119)*
PRAI US 1978-932922 19780811; US 1979-16969 19790302
IC H01M010-04
AB US 4262414 A UPAB: 19930915

The sealed, **rechargeable electrochemical cell** has a hermetically sealed glass casing which completely surrounds an **electrode assembly.** This **assembly** is comprised of anode and cathode electrodes containing electrochemically active material, and a porous electrolyte absorbent separator between and in contact with each of the electrodes.

The electrolyte absorbed in the separator is present in an amount not exceeding the separator capacity, the seal being effected at **terminal** conductors extending through the casing wall from the electrodes at the interior of the cell. The cell may be used in the field of medical electronics.

FS EPI
FA AB
MC EPI: S05-A01; X16-A; X16-E03

L36 ANSWER 33 OF 33 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1978-70745A [39] WPIX
TI Metal oxide-hydrogen battery - having back to back positive electrodes and series or parallel cell connection.

DC A85 L03 X16
IN DUNLOP, J D; STOCKEL, J F; VANOMMERIN, G
PA (CNES) CENTRE NAT ETUDE SPATIAL; (COML) COMMUNIC SATELLITE CORP; (TELE-N) TELEVERKETS CENTRAL; (POSM) UK POST OFFICE
CYC 7
PI US 4115630 A 19780919 (197839)*
DE 2811183 A 19780928 (197840)
SE 7802417 A 19781009 (197843)
JP 53116442 A 19781011 (197846)
FR 2384358 A 19781117 (197851)
CA 1090873 A 19801201 (198102)
GB 1596106 A 19810819 (198134)
DE 2811183 C 19860911 (198637)
PRAI US 1977-778821 19770317
IC H01M010-36; H01M012-06
AB US 4115630 A UPAB: 19930901
A **rechargeable** metal oxide-H2 **battery** comprises a series of modules, each having an **electrode stack** with a pair of adjacent positive electrodes (74) (back-to-back), with electrode **separators** (72,76) on their open faces and a negative electrode (78) having a hydrophobic surface, pref. teflon (TRM) adjacent each electrode **separator**. A module **separator** (80) pref. of PTFE, polyethylene or polypropylene, separates negative electrodes of adjacent cells, and esp. has a gas transport layer on one surface.

The negative electrodes of one module are coupled together and the positive electrodes of the succeeding adjacent module, which are also coupled together, forming a series-coupled high-voltage battery. In an alternative embodiment, the negative electrodes of each module are coupled together by a first bus bar (94). Positive electrodes are coupled with a second bus bar (92), forming a parallel coupled cell. A **terminal** is provided on each bus bar.

The double electrode structure reduces stresses and likelihood of shorts due to buckling. Electrolyte contact between adjacent modules is prevented.

FS CPI EPI
FA AB
MC CPI: A12-E06; L03-E04
PLC UPA 19930924
KS: 0210 0231 0239 0248 0947 2571 2653 2727 2728 2739

FG: *001* 011 04- 041 046 047 050 062 064 087 444 47& 477 532 533 535 575 595 60- 623 627 688

=> d l39 1-48 ti

L39 ANSWER 1 OF 48 JAPIO (C) 2004 JPO on STN
TI PROTECTION CIRCUIT MODULE AND BATTERY PACK WITH THE SAME

L39 ANSWER 2 OF 48 JAPIO (C) 2004 JPO on STN
TI SECONDARY BATTERY AND ITS METHOD OF MANUFACTURE

L39 ANSWER 3 OF 48 JAPIO (C) 2004 JPO on STN
TI VACUUM CLEANER

L39 ANSWER 4 OF 48 JAPIO (C) 2004 JPO on STN
TI ROLLED **ELECTRODE** BATTERY PROVIDED WITH HEAT SINK

L39 ANSWER 5 OF 48 JAPIO (C) 2004 JPO on STN
TI ELECTRONIC STRING INSTRUMENT

L39 ANSWER 6 OF 48 JAPIO (C) 2004 JPO on STN
TI PHOTO **BATTERY RECHARGEABLE** BY PHOTOLYSIS OF WATER, ITS **ELECTRODE**, AND MANUFACTURING METHOD OF THE SAME

L39 ANSWER 7 OF 48 JAPIO (C) 2004 JPO on STN
TI RECHARGER

L39 ANSWER 8 OF 48 JAPIO (C) 2004 JPO on STN
TI **RECHARGEABLE BATTERY** AND **RECHARGEABLE BATTERY** PACK

L39 ANSWER 9 OF 48 JAPIO (C) 2004 JPO on STN
TI **RECHARGEABLE BATTERY** OF **RECHARGEABLE BATTERY** PACK AND ELECTRONIC DEVICE HAVING ONE OF THEM

L39 ANSWER 10 OF 48 JAPIO (C) 2004 JPO on STN
TI ELECTRIC DEVICE AND **ASSEMBLY**

L39 ANSWER 11 OF 48 JAPIO (C) 2004 JPO on STN
TI CRUSHING TYPE PRESSURE SENSING DEVICE, **RECHARGEABLE** TYPE **BATTERY** WITH PRESSURE SENSING DEVICE AND PORTABLE ELECTRONIC APPARATUS

L39 ANSWER 12 OF 48 JAPIO (C) 2004 JPO on STN
TI **RECHARGEABLE BATTERY** USING PRESSURE BREAKING PROTECTION DEVICE AND PORTABLE ELECTRONIC EQUIPMENT USING **RECHARGEABLE BATTERY**

L39 ANSWER 13 OF 48 JAPIO (C) 2004 JPO on STN
TI CORDLESS WATER TANK BASED ON ELECTROLYSIS

L39 ANSWER 14 OF 48 JAPIO (C) 2004 JPO on STN
TI UNIT FOR TRANSMITTING CHARGING CURRENT BETWEEN BATTERIES

L39 ANSWER 15 OF 48 JAPIO (C) 2004 JPO on STN
TI RESET SWITCH MECHANISM

L39 ANSWER 16 OF 48 JAPIO (C) 2004 JPO on STN
TI EXPLOSION-PROOF PROTECTION DEVICE WITH FUSE FUNCTION, **RECHARGEABLE BATTERY** USING SAME, AND PORTABLE ELECTRONIC APPARATUS USING THE **RECHARGEABLE BATTERY**

L39 ANSWER 17 OF 48 JAPIO (C) 2004 JPO on STN
TI PRESSURE-CRUSH PROTECTING DEVICE, SPACER FOR **RECHARGEABLE BATTERY, RECHARGEABLE BATTERY** AND PORTABLE ELECTRONIC APPARATUS USING THE **RECHARGEABLE BATTERY**

L39 ANSWER 18 OF 48 JAPIO (C) 2004 JPO on STN
TI PRESSURE PROTECTIVE DEVICE, **RECHARGEABLE BATTERY** SPACER AND PORTABLE ELECTRONIC APPARATUS USING **RECHARGEABLE BATTERY**

L39 ANSWER 19 OF 48 JAPIO (C) 2004 JPO on STN
TI PRESSURE CRUSHING TYPE PROTECTIVE DEVICE, BATTERY USING THE SAME, AND PORTABLE ELECTRONIC EQUIPMENT USING THE BATTERY

L39 ANSWER 20 OF 48 JAPIO (C) 2004 JPO on STN
TI POWER SUPPLY BATTERY HOUSING STRUCTURE OF ELECTRIC POWER-ASSISTED BICYCLE

L39 ANSWER 21 OF 48 JAPIO (C) 2004 JPO on STN
TI **CONNECTING** DEVICE FOR POWER SOURCE

L39 ANSWER 22 OF 48 JAPIO (C) 2004 JPO on STN
TI RECTANGULAR BATTERY

L39 ANSWER 23 OF 48 JAPIO (C) 2004 JPO on STN
TI ELECTRIC CIRCUIT FOR DETECTING VOLTAGE

L39 ANSWER 24 OF 48 JAPIO (C) 2004 JPO on STN
TI DIVING COMPUTER

L39 ANSWER 25 OF 48 JAPIO (C) 2004 JPO on STN
TI BATTERY PACK

L39 ANSWER 26 OF 48 JAPIO (C) 2004 JPO on STN
TI UMBRELLA WITH ILLUMINANT

L39 ANSWER 27 OF 48 JAPIO (C) 2004 JPO on STN

TI **RECHARGEABLE BATTERY** AND ELECTRONIC APPLIANCE FOR ACCOMMODATING **RECHARGEABLE BATTERY**

L39 ANSWER 28 OF 48 JAPIO (C) 2004 JPO on STN
TI CHARGER DEVICE WITH OPTICAL **COMMUNICATION** FUNCTION

L39 ANSWER 29 OF 48 JAPIO (C) 2004 JPO on STN
TI RECHARGEABLE SMALL ELECTRIC APPLIANCE

L39 ANSWER 30 OF 48 JAPIO (C) 2004 JPO on STN
TI **RECHARGEABLE** SECONDARY **BATTERY** PACK

L39 ANSWER 31 OF 48 JAPIO (C) 2004 JPO on STN
TI BATTERY CHARGING CIRCUIT

L39 ANSWER 32 OF 48 JAPIO (C) 2004 JPO on STN
TI **RECHARGEABLE** DUMMY **BATTERY**

L39 ANSWER 33 OF 48 JAPIO (C) 2004 JPO on STN
TI **BATTERY** HOLDING STRUCTURE FOR **RECHARGEABLE** ELECTRIC APPLIANCE

L39 ANSWER 34 OF 48 JAPIO (C) 2004 JPO on STN
TI OVERCHARGE AND OVERDISCHARGE PREVENTIVE CIRCUIT FOR SECONDARY BATTERY

L39 ANSWER 35 OF 48 JAPIO (C) 2004 JPO on STN
TI BATTERY WITH CHARGING FUNCTION

L39 ANSWER 36 OF 48 JAPIO (C) 2004 JPO on STN
TI RECHARGEABLE TYPE COMPACT ELECTRIC APPLIANCE

L39 ANSWER 37 OF 48 JAPIO (C) 2004 JPO on STN
TI ON-VEHICLE APPLIANCE

L39 ANSWER 38 OF 48 JAPIO (C) 2004 JPO on STN
TI POWER SOURCE EQUIPMENT

L39 ANSWER 39 OF 48 JAPIO (C) 2004 JPO on STN
TI LAMP VOLTAGE CONTROL CIRCUIT FOR MOTORCYCLE

L39 ANSWER 40 OF 48 JAPIO (C) 2004 JPO on STN
TI **RECHARGEABLE BATTERY** DEVICE

L39 ANSWER 41 OF 48 JAPIO (C) 2004 JPO on STN
TI STORAGE BATTERY

L39 ANSWER 42 OF 48 JAPIO (C) 2004 JPO on STN

TI MANUFACTURE OF ALKALINE STORAGE BATTERY

L39 ANSWER 43 OF 48 JAPIO (C) 2004 JPO on STN
TI SERIES **CONNECTION** CIRCUIT OF LITHIUM SECONDARY BATTERY

L39 ANSWER 44 OF 48 JAPIO (C) 2004 JPO on STN
TI RECHARGABLE ELECTRIC MACHINERY

L39 ANSWER 45 OF 48 JAPIO (C) 2004 JPO on STN
TI MANUFACTURE OF SEALED TYPE LEAD-ACID BATTERY

L39 ANSWER 46 OF 48 JAPIO (C) 2004 JPO on STN
TI RECHARGEABLE ELECTRICAL EQUIPMENT

L39 ANSWER 47 OF 48 JAPIO (C) 2004 JPO on STN
TI ENCLOSED TYPE LEAD STORAGE BATTERY

L39 ANSWER 48 OF 48 JAPIO (C) 2004 JPO on STN
TI MANUFACTURE OF LEAD-ACID BATTERY

=> d ibib abs 2 4 8 9 10 22 25 31 32 39 41 42 43 47 48

L41 ANSWER 2 OF 142 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:565917 HCAPLUS
TITLE: Sealed **prismatic battery**
INVENTOR(S): Asahina, Takashi; Kajiya, Hiromi; Hamada, Shinji; Eto, Toyohiko
PATENT ASSIGNEE(S): Japan
SOURCE: U.S. Pat. Appl. Publ.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003138692	A1	20030724	US 2002-349683	20020123
JP 2003217558	A2	20030731	JP 2002-14704	20020123
EP 1335444	A2	20030813	EP 2003-250401	20030122

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK

PRIORITY APPLN. INFO.: JP 2002-14704 A 20020123

AB A sealed **prismatic battery** has a **battery** case made of a plurality of prismatic cell cases coupled together via partition walls. Electrode plate groups are accommodated

together with liquid electrolyte in each of the cell cases. Each electrode plate group consists of alternately **stacked**-up positive and negative **electrode** plates with separators interposed therebetween, lead portions of positive and negative electrode plates being protruded on opposite sides. Collectors are bonded to these lead portions. Between the collectors and end walls (and/or partition walls) of the battery case are provided conductive plates that are connected to the collectors one or more than one location in their middle part so as to decrease the resistance between **connection terminals** and the **electrode** plate groups.

L41 ANSWER 4 OF 142 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:738055 HCAPLUS
DOCUMENT NUMBER: 139:263359
TITLE: A **rechargeable** lithium-ion **battery** with increased power density and its manufacture
INVENTOR(S): Ju, Yongming
PATENT ASSIGNEE(S): Peop. Rep. China
SOURCE: PCT Int. Appl., 42 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003077347	A1	20030918	WO 2003-CN169	20030307
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CN 1444304	A	20030924	CN 2002-107210	20020308

PRIORITY APPLN. INFO.: CN 2002-107210 A 20020308

AB In the title battery, each mono-cell consists of a cover plate, a neg. pole, a safety valve, a pos. pole, an electrolyte soln. and a case. The pos. pole is connected with the pos. electrode, and the neg. pole is connected with the neg. electrode. Pos. electrode substrate is selected from an aluminum foil with certain thickness,

which is coated with pos. active material on both sides. Neg. electrode substrate is selected from copper foil with certain thickness, which is coated with neg. active material on both sides. The inner body of the lithium ion battery is an **electrode assembly** which has multi-layer laminated structure having long and foldable neg. sheet, some pos. electrode sheet and separator, and in this **electrode assembly**, the pos. **electrode** sheets and the neg. electrode sheet are sep. positioned in sequence. Either the pos. electrode sheets or the neg. electrode sheet is alternately shaped into rectangle sheet with big-leaf single tab or big-leaf multiple tabs, current flows to the poles by means of current-collecting clamp. Both pos. electrode and neg. electrode have one or more electrode poles.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 8 OF 142 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:588575 HCAPLUS
TITLE: Sealed **prismatic battery** and **battery** module
INVENTOR(S): Asahina, Takashi; Hamada, Shinji; Eto, Toyohiko
PATENT ASSIGNEE(S): Japan
SOURCE: U.S. Pat. Appl. Publ.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003143458	A1	20030731	US 2003-353861	20030129

PRIORITY APPLN. INFO.: JP 2002-19772 A 20020129

AB A sealed **prismatic battery** includes an electrode plate group having positive and negative **electrode** plates **stacked** upon one another with a separator interposed therebetween, collectors each connected to a lead portion on either side of the electrode plate group and having one or more connection bosses formed in a middle part thereof, and a battery case, generally rectangular in shape, for accommodating the **electrode** plate group **connected** with the collectors. The battery case has a through-hole for the connection boss of the collector to penetrate therethrough via a rubber seal. A battery module includes a plurality of the sealed **prismatic batteries**, the connection bosses of which are connected to each other.

L41 ANSWER 9 OF 142 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:93028 HCAPLUS
TITLE: **Prismatic** sealed **battery** module
INVENTOR(S): Hamada, Shinji; Asahina, Takashi; Eto, Toyohiko
PATENT ASSIGNEE(S): Japan
SOURCE: U.S. Pat. Appl. Publ.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003027041	A1	20030206	US 2002-213811	20020806
JP 2003051335	A2	20030221	JP 2001-237754	20010806

PRIORITY APPLN. INFO.: JP 2001-237754 A 20010806

AB In a **prismatic** sealed **battery** module which includes a plurality of electrode plate groups, collectors joined to leads on both sides of the electrode plate group, and a **prismatic battery** case for storing the plurality of **electrode** plate groups, a **connected-electrode**-plate-group body is constituted by **connecting** the plurality of **electrode** groups with collectors interposed between them. A sheet covering both side surfaces and a bottom surface of the peripheral surfaces of the **connected-electrode**-plate-group body is provided. After gaps between the sheet and outer edges of the collectors are sealed, the **connected-electrode**-plate-group body is placed in the **prismatic battery** case. Thereby, the current-carrying paths between the electrode plate groups are short and straight, resulting in reduced internal resistance. A battery case for the individual cell is constituted such that gaps between outer edges of the collectors which are not sealed to the sheet, and the inner surfaces of the **prismatic battery** case are sealed.

L41 ANSWER 10 OF 142 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:93027 HCAPLUS
TITLE: Cell, connected-cell body, and battery module using the same
INVENTOR(S): Asahina, Takashi; Fukuda, Shinsuke; Hamada, Shinji; Eto, Toyohiko; Onishi, Masato
PATENT ASSIGNEE(S): Japan
SOURCE: U.S. Pat. Appl. Publ.

CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003027040	A1	20030206	US 2002-213822	20020806
JP 2003123730	A2	20030425	JP 2002-14702	20020123

PRIORITY APPLN. INFO.: JP 2001-237753 A 20010806
JP 2002-9510 A 20020118
JP 2002-14702 A 20020123

AB A cell includes an electrode plate group which is formed by laminating a positive electrode plate and a negative electrode plate with a separator interposed between them, and includes leads protruding toward directions opposite to each other from one side of the positive electrode plate and the negative electrode plate, collectors which are joined to the leads on both sides of the **electrode** plate group, and include **connection** protrusions formed so as to protrude outside, and a bag-shape battery case containing the electrode plate group joined to the collectors such that only the connection protrusions of the collectors are protruded outside. A battery module is constituted by placing a plurality of the cells in a **prismatic battery** case while the connection protrusions of the collectors of the cells are connected with each other, thereby making the current-carrying path between the electrode plate groups straight and short and increasing the output.

L41 ANSWER 22 OF 142 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:426704 HCAPLUS
DOCUMENT NUMBER: 136:404310
TITLE: Method for fabrication of **prismatic battery** module
INVENTOR(S): Asahina, Takashi; Hamada, Shinji; Eto, Toyohiko; Fukuda, Shinsuke
PATENT ASSIGNEE(S): Matsuhita Electric Industrial Co., Ltd., Japan; Toyota Jidosha Kabushiki Kaisha
SOURCE: Eur. Pat. Appl., 41 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

EP 1211739	A2	20020605	EP 2001-310058	20011130
EP 1211739	A3	20040128		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2002231213	A2	20020816	JP 2001-243421	20010810
US 2003077508	A1	20030424	US 2001-996908	20011130

PRIORITY APPLN. INFO.: JP 2000-364827 A 20001130
JP 2001-243421 A 20010810

AB A **prismatic battery** module includes a **prismatic battery** case having a plurality of prismatic cell cases connected to one another through sepn. walls, a planar electroconductive connector forming part of the sepn. wall between the cell cases, an electrode plate group arranged in each cell case, and an electrolyte placed in each cell case. Lead portions of pos. electrode plates and neg. electrode plates of the **electrode** plate group are directly **connected** to the electroconductive connector. The **prismatic battery** module requires fewer connection points and provides shorter elec. communication paths, thereby reducing internal resistance.

L41 ANSWER 25 OF 142 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:12968 HCAPLUS
DOCUMENT NUMBER: 138:290353
TITLE: A new anode material LiVMoO6 for use in **rechargeable** Li-ion **batteries**
AUTHOR(S): Liu, R. S.; Wang, C. Y.; Hu, S. F.; Jang, L. Y.; Lee, J. F.
CORPORATE SOURCE: Department of Chemistry, National Taiwan University, Taipei, Taiwan
SOURCE: Frontiers of Solid State Chemistry, Proceedings of the International Symposium on Solid State Chemistry in China, Changchun, China, Aug. 9-12, 2002 (2002), 79-84. Editor(s): Feng, Shou-Hua; Chen, Jie-Sheng. World Scientific Publishing Co. Pte. Ltd.: Singapore, Singapore. CODEN: 69DKLP; ISBN: 981-238-105-8
DOCUMENT TYPE: Conference
LANGUAGE: English

AB The lithiated transition metal oxide LiVMoO6 has been synthesized by solid state reaction and studied as an anode material. The synthesized LiVMoO6 powder has been studied by means of x-ray diffraction and x-ray absorption near edge structure spectroscopy. The electrochem. characteristics of the prepd. **electrodes assembled** in coin cells were also investigated in terms of half-cell performance. The cell exhibits three stages of discharge plateaus in the ranges 2.1-2.0 V, 0.6-0.5 V and 0.2-0.01 V, resp. The total discharge capacity, averaged over several test runs, is

.apprx.1250 mA-h/g. This value is much higher than the capacities exhibited by many other anode materials.
REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 31 OF 142 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
ACCESSION NUMBER: 2001-511324 [56] WPIX
TITLE: **Rechargeable** lithium **battery.**
DERWENT CLASS: X16
INVENTOR(S): KIM, Y S
PATENT ASSIGNEE(S): (SMSU) SAMSUNG SDI CO LTD
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
KR 2001017194	A	20010305	(200156)*		1

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
KR 2001017194	A	KR 1999-32579	19990809

PRIORITY APPLN. INFO: KR 1999-32579 19990809
AN 2001-511324 [56] WPIX
AB KR2001017194 A UPAB: 20011001
NOVELTY - A **rechargeable** lithium **battery** is provided to reduce the manufacturing cost by manufacturing a battery having a large capacitance using a case formed with a pouch.
DETAILED DESCRIPTION - A **rechargeable** lithium **battery** comprises an **electrode assembly** (20) consisting of an anode plate, a cathode plate and a separator which are stacked on another. A case(30) is provided to seal the **electrode assembly**(20). The **electrode assembly**(20) is connected to a **terminal** which is exposed to an outer portion of the case(30). The case(30) includes a front wall(31) having the first pouch(31a) and a rear wall(33) having the second pouch(33a). The rear wall(33) is coupled to the front wall(31). The first and second pouches(31a,33a) have predetermined depths so as to accommodate the **electrode assembly**(20) therein. The bottom area of the first pouch(31a) is different from the bottom area of the second pouch(33a).
Dwg.1/10

L41 ANSWER 32 OF 142 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
ACCESSION NUMBER: 2001-607952 [70] WPIX
DOC. NO. NON-CPI: N2001-453896
TITLE: Compact lithium-ion battery has cells arranged longitudinally in housing with ends closed by anode and cathode cell **terminals**, enabling closed housing to hold ion transporting electrolyte.
DERWENT CLASS: X16 X22
INVENTOR(S): BENSON, M R; SANDBERG, M G
PATENT ASSIGNEE(S): (DELP-N) DELPHI TECHNOLOGIES INC
COUNTRY COUNT: 2
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
DE 10105877	A1	20010823	(200170)*		7
US 2002045096	A1	20020418	(200228)		
US 6406815	B1	20020618	(200244)		

APPLICATION DETAILS:

PATENT NO	KIND		APPLICATION	DATE
DE 10105877	A1		DE 2001-10105877	20010209
US 2002045096	A1	Div ex	US 2000-502706	20000211
			US 2001-1329	20011023
US 6406815	B1		US 2000-502706	20000211

PRIORITY APPLN. INFO: US 2000-502706 20000211; US 2001-1329 20011023
AN 2001-607952 [70] WPIX
AB DE 10105877 A UPAB: 20011129
NOVELTY - The battery has a housing with separate anode and cathode **terminals**, bipolar lithium-ion cells with a polymer **separator** between them with thin film plastic substrate cell **electrodes** suitably electrically **connected** to the **anode** and **cathode** cell **terminals**. The cells are arranged longitudinally in the housing, whose ends are closed by the cell **terminals**, enabling the housing to hold an electrolyte that transports ions between the anode and cathode.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following: a method of manufacturing a lithium-ion battery.
USE - **Rechargeable** lithium-ion **battery**, especially a compact battery suitable for the automobile industry.
ADVANTAGE - The battery can be manufactured by automated methods with a polymer membrane or **separator** permeable to

lithium ions between bipolar electrodes and cell **electrodes** suitably electrically **connected** to the **anode** and **cathode terminals** at opposite ends of the battery housing.

DESCRIPTION OF DRAWING(S) - The drawing shows a schematic perspective exploded representation of a lithium-ion battery battery 10

plastic end covers 14,16

cell casing 12

Dwg.1/16

L41 ANSWER 39 OF 142 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

ACCESSION NUMBER: 2000-107948 [10] WPIX

CROSS REFERENCE: 1995-330140 [43]

DOC. NO. NON-CPI: N2000-083024

DOC. NO. CPI: C2000-032613

TITLE: Battery e.g., nickel-cadmium, nickel hydride or **rechargeable** lithium ion **battery** with improved high-rate discharge characteristics.

DERWENT CLASS: L03 X16

INVENTOR(S): AKAZAWA, T; GOTOU, Y; TADOKORO, M; TAGAWA, H; YOSHIDA, T; GOTO, Y

PATENT ASSIGNEE(S): (SAOL) SANYO ELECTRIC CO LTD

COUNTRY COUNT: 30

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
EP 969538	A1	20000105	(200010)*	EN	23
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI					
JP 2000021435	A	20000121	(200015)		9
CN 1242613	A	20000126	(200024)		
KR 2000005695	A	20000125	(200063)		
TW 425730	A	20010311	(200143)		
US 6284408	B1	20010904	(200154)		
EP 969538	B1	20020904	(200266)	EN	
R: DE FR GB					
DE 69902721	E	20021010	(200274)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 969538	A1	EP 1999-112294	19990625
JP 2000021435	A	JP 1998-184939	19980630
CN 1242613	A	CN 1999-107948	19990604
KR 2000005695	A	KR 1999-18372	19990521

TW 425730	A	TW 1999-110117	19990616
US 6284408	B1	US 1999-340129	19990628
EP 969538	B1	EP 1999-112294	19990625
DE 69902721	E	DE 1999-602721	19990625
		EP 1999-112294	19990625

FILING DETAILS:

PATENT NO	KIND		PATENT NO
DE 69902721	E	Based on	EP 969538

PRIORITY APPLN. INFO: JP 1998-184939 19980630
AN 2000-107948 [10] WPIX
CR 1995-330140 [43]
AB EP 969538 A UPAB: 20000228
NOVELTY - The second electrode plate (72) projects out beyond the active material border of the connecting **band** and the active material region, and the active material border is opposite the second electrode plate (72) with the separator (73) in between.

DETAILED DESCRIPTION - The battery has an **electrode assembly** with a first **electrode** plate (71) and second electrode plate (72) forming a positive electrode plate and negative electrode plate layered via a separator (73). An external case (75) holds the **electrode assembly** (74) and a collector plate (76) is electrically connected to plate (71). Plate (71) is a non-sintered type electrode with active material loaded into a porous metal material substrate, and has a connecting **band** of exposed substrate and an active material region. Connecting **band** is electrically connected to plate (76).

USE - None given.

ADVANTAGE - Battery has improved high-rate discharge characteristics. Internal short circuits between the electrode plates (71, 72) can be drastically reduced. If material with holes or openings such as punched metal etc. is used as the thin metal plate, sufficient flexibility is attained, thin metal plate fracture does not occur even when the **electrode assembly** is wound into a spiral shape, and internal short circuits are prevented with extreme effectiveness.

DESCRIPTION OF DRAWING(S) - The diagram shows a part view partly in cross section of an embodiment of the battery.

First electrode plate 71
Second electrode plate 72
Separator 73
Electrode assembly 74
External case 75
Collector plate 76
Lead plate 76A

Thin metal plate 710
Sealing lid 711
Terminal 712
Dwg.7/21

L41 ANSWER 41 OF 142 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
ACCESSION NUMBER: 2000-271638 [23] WPIX
DOC. NO. NON-CPI: N2000-203378
DOC. NO. CPI: C2000-083037
TITLE: Flexible charge storage device for use as super capacitors has sheet electrodes and a **porous separator** contained in a sealed package.
DERWENT CLASS: A85 L03 V01 X16
INVENTOR(S): SACCHETTA, C S; VASSALLO, A M
PATENT ASSIGNEE(S): (ENER-N) ENERGY STORAGE SYSTEMS PTY LTD
COUNTRY COUNT: 23
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2000016352	A1	20000323	(200023)*	EN	21
RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE					
W: AU CA JP US					
AU 9959624	A	20000403	(200034)		
EP 1133781	A1	20010919	(200155)	EN	
R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE					
US 6552895	B1	20030422	(200330)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2000016352	A1	WO 1999-AU780	19990916
AU 9959624	A	AU 1999-59624	19990916
EP 1133781	A1	EP 1999-969174	19990916
		WO 1999-AU780	19990916
US 6552895	B1	WO 1999-AU780	19990916
		US 2001-786908	20010612

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 9959624	A	Based on	WO 2000016352
EP 1133781	A1	Based on	WO 2000016352
US 6552895	B1	Based on	WO 2000016352

PRIORITY APPLN. INFO: AU 1998-5965 19980916
AN 2000-271638 [23] WPIX
AB WO 200016352 A UPAB: 20000516
NOVELTY - A flexible charge storage device includes:
(a) first and second sheet electrodes each having **terminals** (5, 6);
(b) a **porous separator** disposed between the electrodes; and
(c) a sealed package (3) to contain the electrodes, the **separator** and an electrolyte (12).
The **terminals** extend from the package to allow **connection** to the **electrodes**.
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a method of producing a flexible charge storage device. The method includes:
(a) providing sheet electrodes;
(b) disposing a **porous separator** between the electrodes; and
(c) sealing the electrodes and the **separator** in a package containing an electrolyte.
USE - For use as super capacitor in mobile communications, self-propelled toys and automotive applications.
ADVANTAGE - The arrangement of the flexible charge storage device not only extends the life of a **battery** but will quickly **recharge**. The compact and flexible nature of the capacitor and its package allows them to be placed in confined spaces and in many different configurations.
DESCRIPTION OF DRAWING(S) - The figure shows a charge storage device.
package 3
terminals 5, 6
electrolyte 12
Dwg.1/3

L41 ANSWER 42 OF 142 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
ACCESSION NUMBER: 2000-237311 [20] WPIX
DOC. NO. NON-CPI: N2000-178012
DOC. NO. CPI: C2000-072143
TITLE: **Separator** seal for cylindrical electrochemical cell comprises layer(s) of micro-**porous** or non-**porous** membrane or their combination, and layer(s) of a **porous** sheet material.
DERWENT CLASS: A18 A23 A85 L03 X16
INVENTOR(S): BOOK, R J; DANIEL-IVAD, E; DANIEL-IVAD, J
PATENT ASSIGNEE(S): (BATT-N) BATTERY TECHNOLOGIES INC
COUNTRY COUNT: 85
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2000007257	A1	20000210	(200020)*	EN	22
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW					
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZW					
AU 9948927	A	20000221	(200029)		
US 6099987	A	20000808	(200040)		
EP 1114487	A1	20010711	(200140)	EN	
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI					
KR 2001074765	A	20010809	(200211)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2000007257	A1	WO 1999-CA669	19990723
AU 9948927	A	AU 1999-48927	19990723
US 6099987	A	US 1998-122316	19980724
EP 1114487	A1	EP 1999-932582	19990723
		WO 1999-CA669	19990723
KR 2001074765	A	KR 2001-701120	20010126

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 9948927	A	Based on	WO 2000007257
EP 1114487	A1	Based on	WO 2000007257

PRIORITY APPLN. INFO: US 1998-122316 19980724

AN 2000-237311 [20] WPIX

AB WO 200007257 A UPAB: 20000426

NOVELTY - **Separator** seal for a cylindrical electrochemical cell include layer(s) of a microporous or a non-**porous** membrane, or their combination; and layer(s) of a **porous** sheet material. The seal overlaps at least a portion of the **separator**. It is located near the positive **terminal** of the cell, adjacent an end of the **separator** to separate the **anode** and **cathode** while ionically **connecting** them.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a cylindrical electrochemical cell having an anode; a cathode

(14); a cylindrical **separator** (20) coaxial with the cell for electrically separating the anode and cathode; and a cup (37, 38) near the positive **terminal** of the cell, forming a seal for an end of the **separator.**

USE - For a cylindrical **electrochemical rechargeable cell,** e.g. manganese dioxide-zinc cell.

ADVANTAGE - The invented cup seal is provided at the bottom of the cell that overlies the **separator.** It is made of the same ion permeable material as the **separator,** providing more available surface area. Improved efficiency and performance is obtained at higher discharge rates even though the absorbent non-woven fibrous layers of the materials are compressed. The reduction or elimination of the hot-melt sealant makes it possible for a commercial high speed production of the cells because the electrolyte dispensed into the **cathode/separator** sub-**assembly** is absorbed more quickly, allowing faster machine speeds and/or less investment in inventory tables to provide sufficient delay time for electrolyte absorption.

DESCRIPTION OF DRAWING(S) - An enlarged cross-sectional view of the bottom portion of a cell.

Cathode 14

Cylindrical **separator** 20

First layers 20a

Second layers 20b

cup seal 37, 38

Dwg.3/7

L41 ANSWER 43 OF 142 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

ACCESSION NUMBER: 2001-130986 [14] WPIX

DOC. NO. NON-CPI: N2001-097106

TITLE: Stack type lithium ion **rechargeable battery** has positive and negative electrodes with ends protruded and drawn from edge of **separator** for respective **connection** to positive and negative **electrode terminals.**

DERWENT CLASS: X16

PATENT ASSIGNEE(S): (NIST) JAPAN STORAGE BATTERY CO LTD

COUNTRY COUNT: 1

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
JP 2000348772	A	20001215	(200114)*		7

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 2000348772 A		JP 1999-157849	19990604

PRIORITY APPLN. INFO: JP 1999-157849 19990604
AN 2001-130986 [14] WPIX
AB JP2000348772 A UPAB: 20010312
NOVELTY - A **separator** (7) covers the ends of a positive electrode (5) and a negative electrode (6). The edge portion of one end of positive electrode is protruded and drawn from the edge of the **separator**, for **connection** to a positive **electrode terminal**. The edge portion of one end of the negative electrode is protruded and drawn from the **separator** for **connection** to a negative **electrode terminal** (4).

USE - None given.

ADVANTAGE - Prevents electric current from concentrating in collector portion of positive and negative electrode. Attains reduction of non-uniform temperature distribution, hence increasing safety and reliability of battery life span.

DESCRIPTION OF DRAWING(S) - The figure shows the partially enlarged perspective diagram of the structure of collector portion in the side of negative electrode of electricity generating component in lithium ion **rechargeable battery**.

Negative electrode **terminal** 4
Positive electrode 5
Negative electrode 6
Separator 7
Dwg.1/6

L41 ANSWER 47 OF 142 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1999:519630 HCAPLUS
DOCUMENT NUMBER: 131:132350
TITLE: Electrode arrangement for nickel-cadmium batteries and process of manufacture
INVENTOR(S): Ohms, Detlef; Kitzhofer, Willi; Schaffrath, Uwe; Benczur-Urmossy, Gabor
PATENT ASSIGNEE(S): Hoppecke Batterie Systeme G.m.b.H., Germany
SOURCE: Eur. Pat. Appl., 12 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

EP 935305	A2	19990811	EP 1999-101951	19990130
EP 935305	A3	20030416		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
DE 19804649	A1	19990812	DE 1998-19804649	19980206
DE 19804650	A1	19990812	DE 1998-19804650	19980206
CN 1225515	A	19990811	CN 1999-101773	19990205
BR 9900767	A	20000104	BR 1999-767	19990205
US 2001008724	A1	20010719	US 1999-245538	19990205
US 6458484	B2	20021001		
RU 2214022	C2	20031010	RU 1999-102528	19990205

PRIORITY APPLN. INFO.: DE 1998-19804649 A 19980206
DE 1998-19804650 A 19980206

AB To fabricate **prismatic** unsealed Ni-Cd **batteries** without limit for the quantity of electrolyte, fiber structured electrodes are used at least partly, where pos. and neg. plate type electrodes are produced with intermediate placement of separator alternately to form an **electrode** packet of a given **stacked** no. and the rectified **electrodes** are always bonded with each other by **terminal** bridges. The entire surface of the electrode packet is pressed under compression of the separator lying between the electrodes and is fixed in shape stable manner. A separator material is used which has at least in the compressed and fixed state a varying gas transparency in different directions. Thus, a gas transfer is essentially prevented in the directions parallel to the surfaces of the plate type electrodes. However, lateral to the surfaces of the plate-type electrodes it is possible, and cavities are present for occasional intermediate storage of gas.

L41 ANSWER 48 OF 142 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1999:784379 HCAPLUS
DOCUMENT NUMBER: 132:4846
TITLE: Crosslinked polymeric components of **rechargeable** solid lithium **batteries**
INVENTOR(S): Swanson, David B.; Coffey, Brendan Michael; Read, Jeffrey A.; Lewin, Stanley
PATENT ASSIGNEE(S): Ultralife Batteries, Inc., USA
SOURCE: PCT Int. Appl., 18 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

WO 9963609 A1 19991209 WO 1999-US12096 19990601
W: AL, AM, AU, BA, BB, BG, BR, CA, CN, CU, CZ, EE, GD, GE, HR, HU, ID, IL, IN, IS, JP, KG, KP, KR, LC, LK, LR, LT, LV, MD, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, SL, TR, TT, UA, US, UZ, VN, YU, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
AU 9942257 A1 19991220 AU 1999-42257 19990601
TW 447155 B 20010721 TW 1999-88109131 19990716
PRIORITY APPLN. INFO.: US 1998-89207 A 19980602
WO 1999-US12096 W 19990601

AB A **rechargeable** solid polymer lithium ion **battery** cell **assembly** including a pos. **electrode**, a neg. electrode, and a separator membrane in which at least one of the pos. electrode, the neg. electrode and the separator includes a crosslinkable polymer free from crosslinking additives and crosslinked by exposing the assembly to actinic radiation prior to providing an electrolyte to the assembly is provided. A method is provided for making the solid polymer lithium ion battery cell assembly and the individual cell components by providing a crosslinkable polymer to at least one of the cell components, exposing the component to actinic radiation, and crosslinking the polymer. This invention can prevent degrdn. of the cell electrode and separator structures in a polymer electrolyte lithium ion cell and reduces cell problems related to high temp. failure and reduced useful battery life.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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